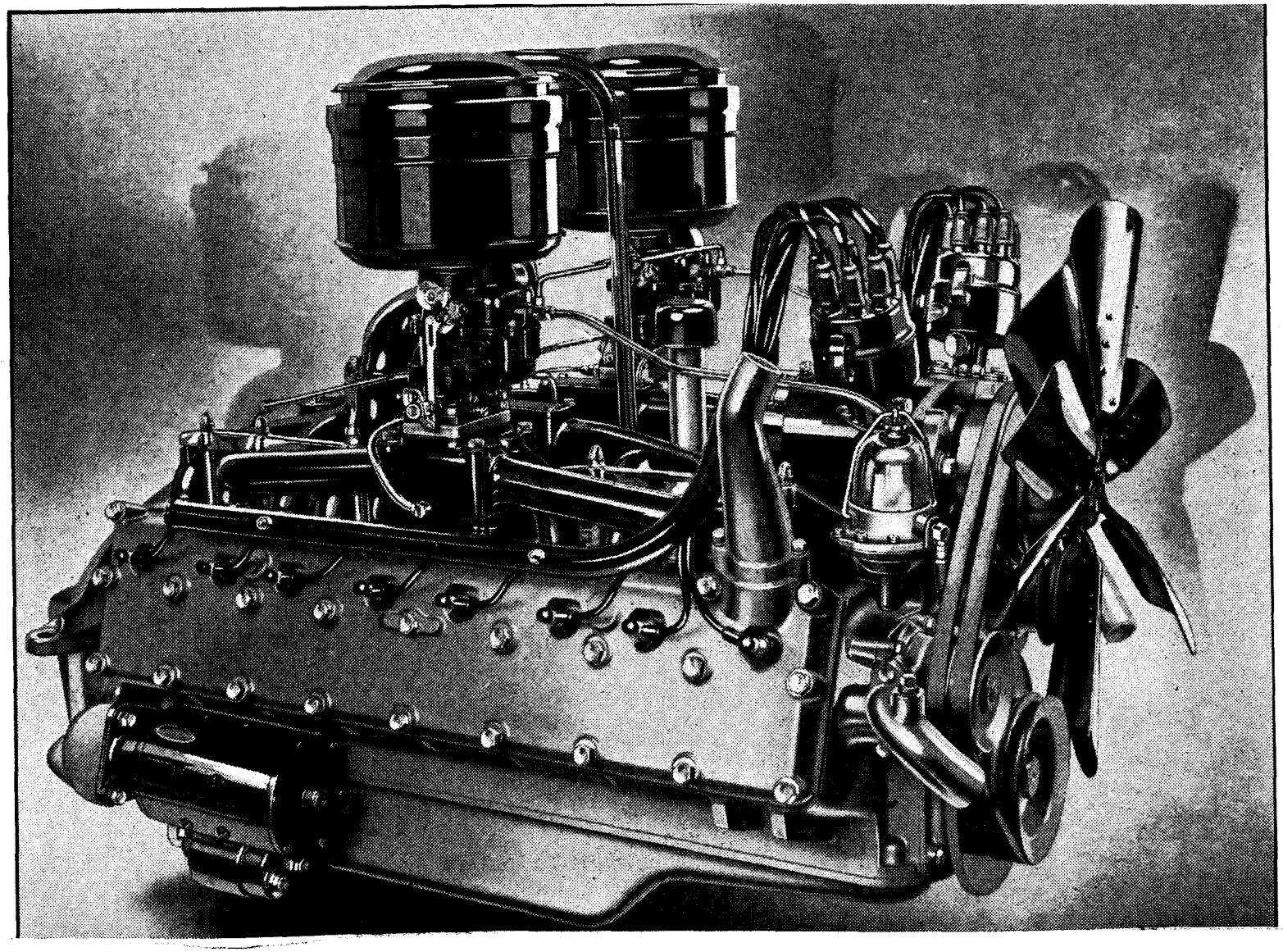


The 135° V-type Sixteen Cylinder Engine

SIXTEEN CYLINDER ENGINE

The 1938 Cadillac sixteen cylinder engine is the result of several years' development by Cadillac engineers for the purpose of making sixteen cylinder smoothness and performance available to a great many more motorists. To accomplish this purpose, a power plant has been designed in which sixteen cylinders totaling 431 cubic inches displacement require no greater hood length than was required for the former V-12 engine. Also, the new Sixteen engine, although much larger, is actually lighter than the former V-12. Unusual compactness, economical service and extreme durability have been realized by the combination of a very short stroke, a V-angle of 135 degrees and an enbloc casting of cylinder banks and crankcase. Other unique features of design are the disposition of dual engine accessories; two dual downdraft carburetors, two manifold systems, two distributors, two coils, two fuel pumps, two water pumps, two fan belts. Each bank of eight cylinders is in running balance, hence the new Sixteen engine will operate more smoothly on one bank of cylinders than most eight cylinder automobiles.

The bore is 3¼ inches, the stroke 3¼ inches.

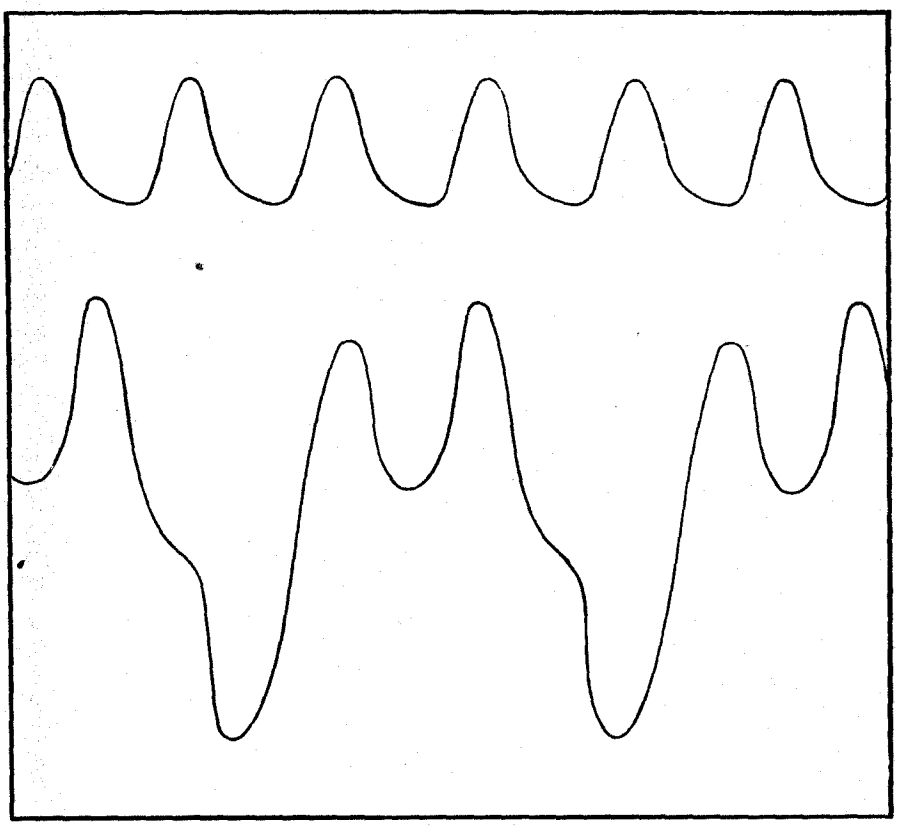
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Advantages of Sixteen Cylinders

Sixteen cylinders have been chosen for the world's most luxurious motor car because of the many advantages inherent in such a design.

Smoothness: This engine is the smoothest in automotive use in the world today because its sixteen small cylinders give explosive impulses every 45 degrees of crankshaft revolution and generate an almost continuous flow of power. This is V-type design as near perfection as only Cadillac could build.

A graphic comparison of the low speed torque impulses (engine fluctuation due to power generated with each engine revolution) of the Cadillac Sixteen with



(Above) Sixteen Torque Curve
(Below) Typical 12 Torque Curve

those of a typical twelve cylinder engine of approximately the same size shows a harmonious flowing curve for the Sixteen and an irregular, impulsive curve

for the twelve. Furthermore, as the speed increases, the Sixteen fluctuations become smaller while the V-12 fluctuations increase. The twelve cylinder vibration curve variations reach a maximum when coasting at high speed, whereas the Sixteen torque variations become zero, represented by a straight line, under these conditions.

Durability: Because the displacement of each cylinder of a sixteen cylinder engine may be smaller, the very short stroke of 3¼ inches is possible. This engine has the lowest piston travel of any American made automobile. This is in conformance with Cadillac practice of a large engine of tremendous reserve power yet always operating slowly, thereby achieving longer engine life and operating economy. Piston travel of the new Sixteen engine is 1590 feet per mile: of a typical twelve, 2270; of LaSalle V-8 and Cadillac Sixty, 2080.

The short stroke reduces the inertia forces of the reciprocating pistons. Connecting rod bearing loads are thus reduced, thereby increasing durability. The short stroke contributes still further to connecting rod bearing life because shorter and lighter rods may be used. With the short stroke and light impulses two inch diameter crankpins afford extreme rigidity and reduce rod bearing friction.

Small bore engines wear less than large bore engines having the same piston travel. The use of sixteen cylinders makes it possible to use a relatively small piston despite the very short stroke.

Performance: Sixteen cylinders permit large displacement for a given hood length. Furthermore, the small cylinders permit the use of the high 6.8 to 1 compression ratio which increases combustion efficiency, resulting in greater power development relative to engine

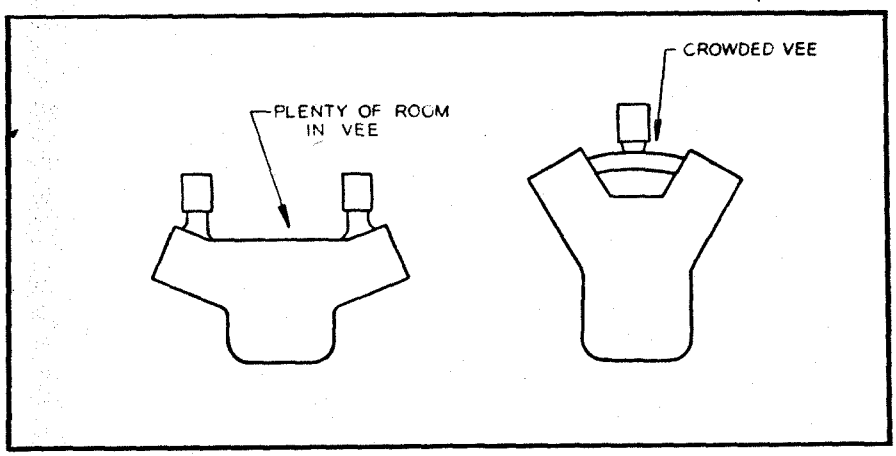
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size and increasing fuel economy. The new engine delivers about the same amount of power as the larger 1937 V-16, being rated at 185 horsepower.

Although the new engine develops as much power as the previous V-16, it has a much lighter vehicle to pull. Performance is, therefore, far better than any automobile heretofore built by Cadillac, better in fact than any passenger car ever built in this country. Maximum speed is well above one hundred miles per hour.

Advantages of 135 Degree V Angle

Smoothness: The 135 degree angle between cylinder blocks gives uniformly spaced power impulses. Uniform spacing of the impulses increases smoothness. The irregularities of the V-12 curve illustrated on page 206 are due to unequal spacing of the explosive forces, as determined by the V angle. The V angle also influences torque fluctuations due to the inertia forces of the reciprocating pistons. In the 135° Sixteen the torque fluctuations from this source are zero. In a V-12 with a V angle of other than 60 degrees (there

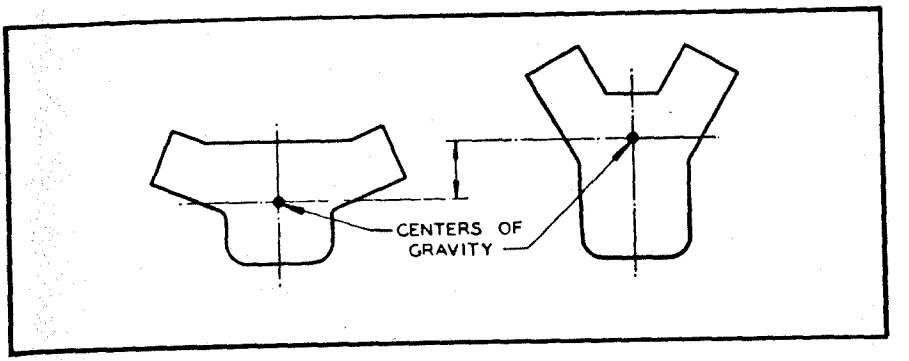


New Sixteen *Typical Twelve*

are no 60 degree V-12's because such an angle gives an impractically crowded V) the inertia forces increase with speed, causing torque fluctuations to increase also

at higher speeds and to be very pronounced on acceleration.

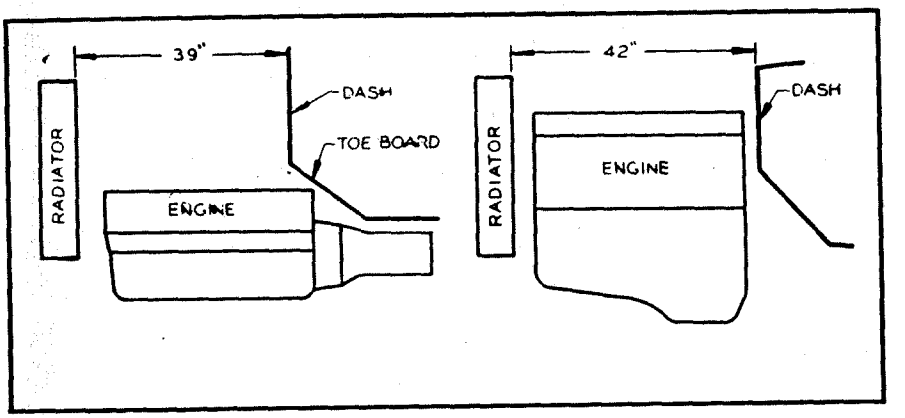
Service Accessibility: The wide V angle permits easy servicing of intake and exhaust systems and of the valve gear. All dual accessories, such as carburetors, distributors, fuel pumps, are conveniently arranged. Pistons and connecting rods may be removed from above.



New Sixteen *Typical Twelve*

Low Center of Gravity: The 135 degree angle materially lowers the weight center of the entire engine assembly, increasing high speed driving stability.

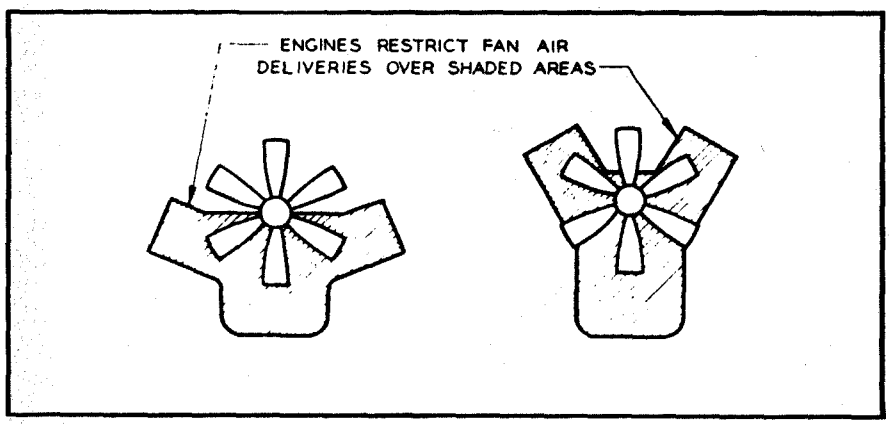
Increased Body Space: The "flat" engine design permits the body dash to be moved forward, thus increasing body space and passenger legroom.



New Sixteen *Typical Twelve*

More Efficient Cooling: The conventional V-type engine masks almost the entire area of the cooling fan. This is avoided on Cadillac and LaSalle V-8's by

placing these short engines well in the rear of the fan. On a longer V-12 it is impossible to avoid reduction of fan efficiency. On the Sixteen, however, half of the



New Sixteen *Typical Twelve*

complete fan diameter is entirely unblocked and the upper portion of the radiator is unrestricted.

SIXTEEN ENGINE CONSTRUCTION

Enbloc Design

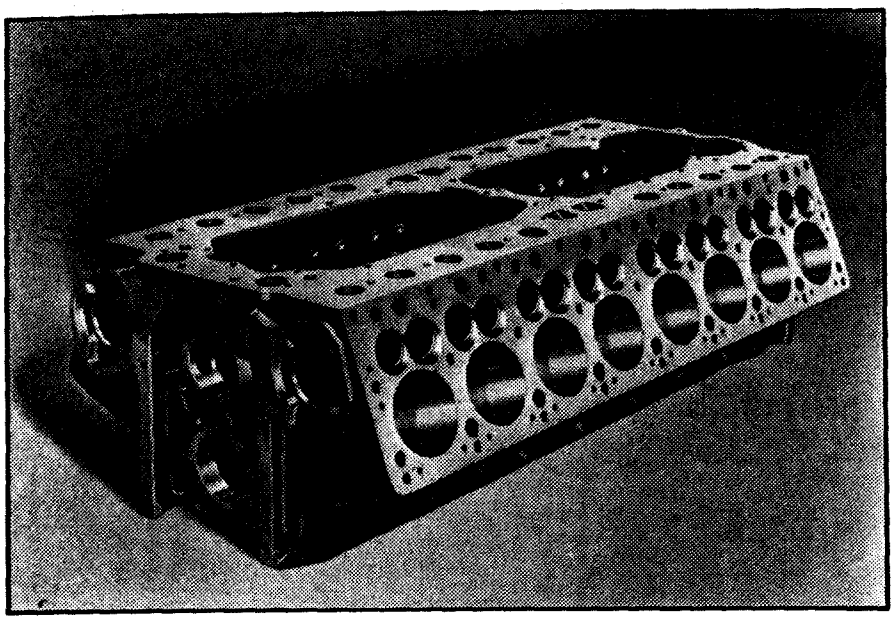
The extremely compact Sixteen engine permits spacious bodies on the 141 inch wheelbase. Bodies are equal or larger in all dimensions than those on the previous V-16 despite a thirteen inch reduction in wheelbase. The compact engine is largely due to one-piece unit design.

It is a great tribute to Cadillac's foundry practice that sixteen cylinders with long water jackets, side valves and ports and a nine bearing crankcase can be successfully produced in a single casting. The Cadillac and LaSalle V-8's have proved that the greater rigidity of enbloc design increases smoothness and that service maintenance is reduced because of the fewer number of joint surfaces subject to leakage or gasket troubles.

The enbloc engine is an important factor in weight reduction. The new 431 cubic inch Sixteen is lighter than the former 368 cubic inch V-12 with its light aluminum crankcase.

Crankcase and Cylinder Block

In general, the crankcase and cylinder block design follows the principles long proven satisfactory on the Cadillac V-8. The crankcase and the two eight-cylinder blocks are cast as a single unit from hard alloy steel and iron. Included angle between the cylinder bore axes is 135 degrees. The crankcase casting has seven ribbed bulkheads which increase rigidity and which, with their front and rear crankcase walls, support the nine main bearings. Since the camshaft is supported on five bearings, camshaft bearings are placed in alternate bulkheads.



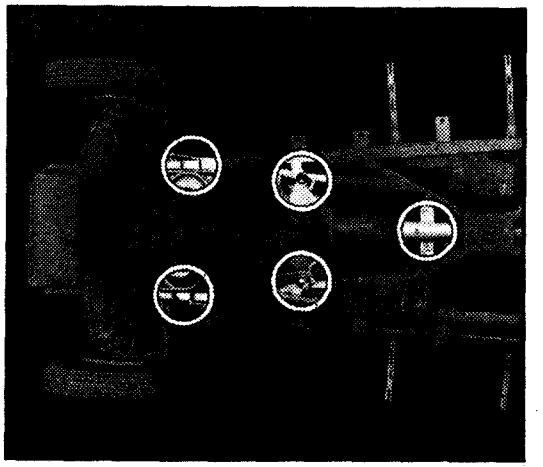
Enbloc Cylinder—Crankcase

Cylinder heads are cast of the same material as the block in accordance with Cadillac practice. Combustion chambers are machined all over to avoid variations in compression pressure between the cylinders.

The L-head combustion chambers and side valves were chosen as most suitable to the "flat" design. Because of the wide V angle there is ample room for the side valve mechanism. The excessive engine width which would be required by the greater cylinder head depth of the valve-in-head design is avoided.

Engine Mounting

The engine is supported at five points by live rubber mounts. There are two supports at the sides in front, two intermediate supports and a rear support on the

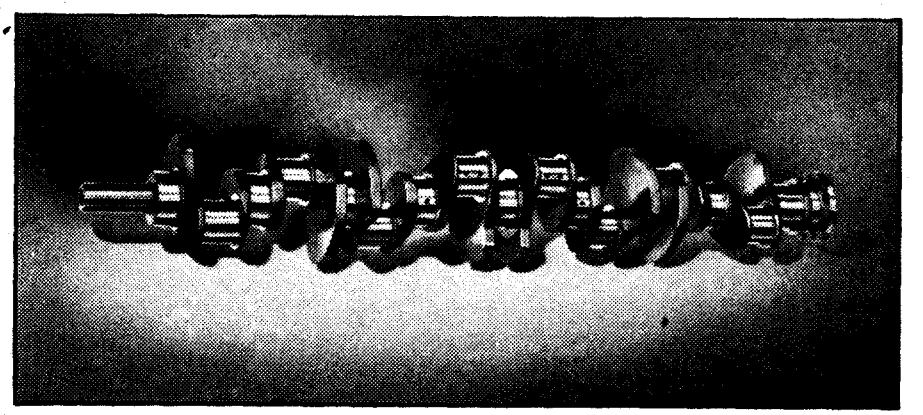


Location of 5-Point Mounts

transmission extension. The engine is, therefore, allowed to rock freely within a limited distance, while at the same time engine weight is utilized to reinforce front frame arms for refined roadability.

Crankshaft and Flywheel

Rigidity and smoothness are assured by the nine bearing counterweighted crankshaft. It is a high carbon steel forging carrying eight integral counterweights. Each of



Nine Bearing Crankshaft

the eight two-inch diameter crankpins carries two side-by-side connecting rods. The nine main bearing journals are 2½ inches in diameter.

The nine main bearings assure resistance to bending forces while the two-inch crankpins and $2\frac{1}{2}$ inch journals are amply rigid against torsional vibration, or twisting forces, because of the light power impulses of the small cylinders and the small inertia forces due to the short stroke. The short stroke also permits the main bearing journals and crankpins to overlap by $\frac{5}{8}$ of an inch which adds further to rigidity.

A rubber torsional vibration dampener is included in the belt pulley assembly at the front of the engine. It is more compact than before and is added solely as a refinement.

Because of the short stroke, the many small cylinders, the rigid crankshaft and the nine main bearings, the Syncro-Flex flywheel, as used on Cadillac V-8, is unnecessary.

Pistons and Connecting Rods

Piston and connecting rod assembly has been specially designed for the new Sixteen. The wrist pin is locked in the rod and rotates in the piston. A lock screw in the



Small Piston and Short Connecting Rod

small end of the rod passes through a notch in the wrist pin, thus holding the pin against the rotation of the rod. This new design makes it unnecessary to rifle drill con-

necting rods. Two grooves inside each wrist pin bearing and running the full length of the pin distribute oil collected from the cylinder wall to the wrist pin bearing.

Because of the short stroke, the connecting rod length is only 6 3/8 inches. Nevertheless, a ratio of rod length to stroke of almost 2 to 1 is maintained. The short, light manganese steel rods materially reduce bearing loads. Use of two-inch crank pins permit the withdrawal of the rods and pistons from above without the necessity of angle-split connecting rod bearings. Removable steel backed babbitt lined bearings are used.

The light low expansion aluminum alloy pistons employ the T-slot principle and the anodized finish which has proved so successful in Cadillacs for several years.

Each piston has two compression rings and one oil ring. Because of the extremely low piston travel of the Sixteen engine, wear is reduced many times, hence more than one oil ring is unnecessary.

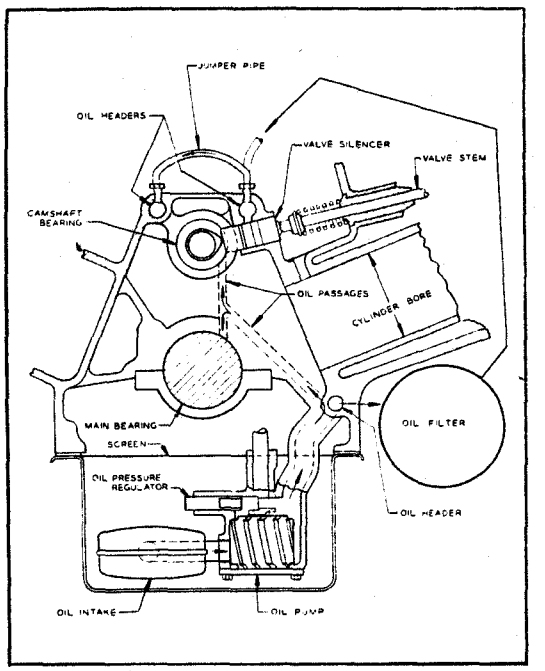
Valve Gear

The camshaft, which is supported upon five bearings, is mounted in the center of the V directly above the crankshaft, and is driven by a silent chain at the front of the engine. The cams operate mushroom type tappets which also embody hydraulic valve silencers of the same type used in the Cadillac V-8's. The tappets in turn operate the valves which have single springs. High speed operation without valve clatter is assured by the light weight valves. The complete mechanism, except the camshaft, is enclosed by two removable valve chamber covers placed across the top of the engine V alley.

LUBRICATION SYSTEM

Engine lubrication follows the Cadillac practice of positively forcing oil to all points, many of which in other engines are oil starved because of reliance upon crankcase oil mist.

Oil is drawn from the pan by a float type intake which stays on the surface of the oil, thus assuring a clean supply. From the intake, oil passes to the helical gear pump which contains a by-pass type of piston oil pressure regulator valve within its housing and is located at the oil level at the rear of the engine. The pump is driven by an upwardly extending vertical shaft having a gear at its top meshing with a cross-drive gear integral with the camshaft.



Sixteen Engine Lubrication

From the oil pump oil passes to a longitudinal header within the crankcase and running its full length. Drilled passages connecting with the header and passing through each of the engine bulkheads supply the main bearings from which passages in the crankshaft lead lubricant to the connecting rod bearings. The camshaft bearings are lubricated by passages which connect

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with the previously mentioned main bearing supply passages. The oil pump driveshaft bearing, the two distributor driveshafts and their eccentrics for driving the two fuel pumps are positively lubricated by additional passages connecting with the main bearing supplies. The timing chain and sprocket are lubricated by oil which has passed through the front camshaft bearing; oil from the front camshaft bearing collects in a cavity within the camshaft sprocket from which centrifugal force throws it through a number of radially drilled holes, lubricating the chain.

From the main oil header in the side of the crankcase a pipe leads the oil to the oil filter, thence to two longitudinal headers on either side of the camshaft. Oil from each of these headers passes to the hydraulic valve silencers, lubricating them and providing the pressure necessary for the automatic valve lash adjusting action.

The oil filler is in the center of the front valve chamber cover just behind the generator, and thus is accessible from either side of the engine. A float oil level indicator in the rear of the V gives a continuous reading of the oil quantity. The oil pan capacity is eleven quarts.

Crankcase Ventilation

The Sixteen employs an engine suction type of crankcase ventilation system which has proved itself to be the most efficient ventilating system yet designed.

There is a filter-protected air inlet through the oil filler cap in the center of the front valve chamber cover. This inlet pipe passes downward through the valve chamber and connects with the crankcase. The pipe is sealed at the crankcase so that all air passes into the crankcase.

Two large pipes connect each of the two air cleaners with the front and rear valve chambers respectively. A

conical spring at the bottom of each pipe prevents exhaust gases from being blown into the crankcase.

A third pipe leads from the crankcase through the rear valve chamber and up through the valve chamber cover. Above the cover this pipe connects with the vacuum line leading from the vacuum pump to the intake manifold.

The ventilating system operates in two distinct manners. At low speeds or part throttle operation, air enters the crankcase through a number of holes from three points, through both of the two pipes between the air cleaners and valve chamber covers and through the filter protected oil filler pipe. After the ventilating air has mixed with the crankcase oil mist, absorbing water and fuel vapors, a substantial vacuum draws it out through the intake manifold.

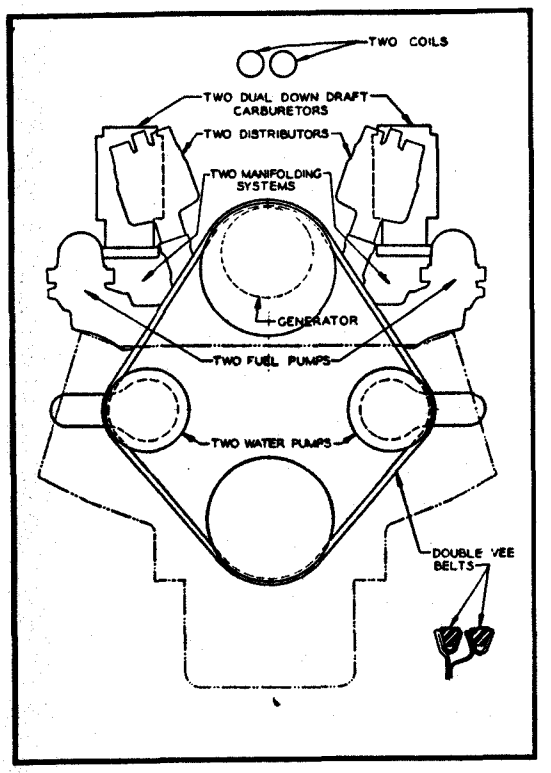
At high speeds or with throttle open, intake vacuum decreases but there is a rapid rush of air through the carburetor air cleaners. This creates a suction in the two pipes connecting them to the valve covers. Air enters the oil filler as before, passes directly to the crankcase, but the outward flow is reversed, the air and impurities going into the valve compartments. The air is then drawn upward into the air cleaners.

The system is simple and reliable in operation and insures an adequate ventilation of the crankcase under all conditions that is not equalled by any other method.

FUEL SYSTEM

From the 26.5 gallon tank fuel is drawn forward through a single pipe placed in a cool position on the outside of the right hand frame sidebar. Near the front of the frame this pipe branches, one lead passing to the right hand fuel pump and one crossing in front of the front

frame crossmember to the left hand pump. This arrangement assures a cool gasoline feed to both pumps thus reducing vapor lock tendencies. The two fuel



Dual Engine Accessories

pumps have integral filters and are of the link driven flexible diaphragm type; the links engage push rods operated in turn by eccentrics on the distributor driveshafts. From the right hand fuel pump a pipe leads to the right hand dual downdraft carburetor while the left hand pump similarly supplies fuel to the left hand carburetor. The two lines are interconnected, however, so either pump may supply both carburetors.

There are two heavy duty oil bath air cleaners of cylindrical shape, each mounted directly above its corresponding carburetor. Dual downdraft carburetors have 1 1/8 inch throats and climatic control. From each of the two carburetors the fuel mixture passes downward to an exhaust heated division chamber thence to the four legs of each of the dual cast iron intake manifolds, which are designed so that no two successively firing

cylinders of a bank draw from the same manifold leg. All intake ports are siamesed. The exhaust ports are single, the two center ports of each cylinder block connecting directly to that portion of the exhaust manifold which heats the intake manifold division chamber. The two exhaust manifolds discharge into a cross pipe placed just behind the carburetors. This pipe conducts the exhaust to the left side of the engine from which the exhaust system leads it downward and to the rear.

Exhaust System

The exhaust pipe leads backward along the left side of the chassis to a large muffler mounted transversely behind the gasoline tank. To keep heat away from the body interiors, the pipe is outside the frame side bar for most of its length.

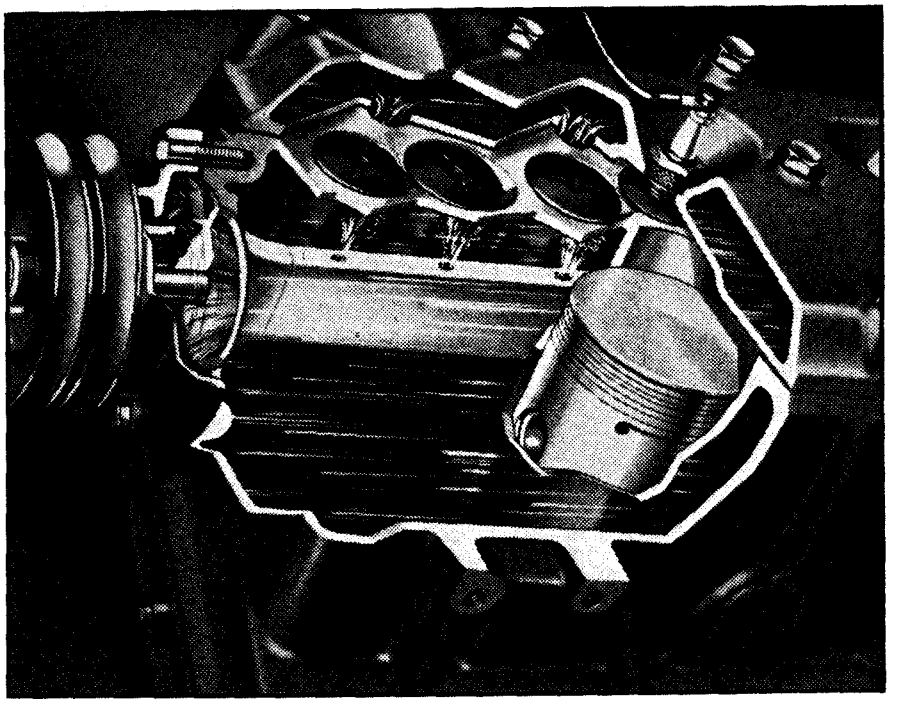
COOLING SYSTEM

The new Sixteen engine has two independent water circulating systems, there being one for each bank of eight cylinders.

The illustration on page 218 shows the general arrangement of the water pump and fan belt drive. Two parallel V-belts driven by double pulleys at the front end of the crankshaft encircle the two water pump pulleys at the sides of the engine and the fan drive pulleys at the top. The double belts obviously have materially longer life than a single belt.

Each of two outlets at the base of the radiator is connected to one of two centrifugal water pumps mounted in the front ends of both cylinder blocks. The pumps employ permanent carbon block water pump packing. The pump impellers are held on very hard steel shafts by a press fit. With dual belt drive the former shear pin construction is unnecessary.

From each pump water is forced directly backward through tubes extending the full length of each cylinder block. These tubes direct sprays of water forcibly



Positively Cooled Valves and Full Length Water Jackets

around the valves, and also assure correct distribution of the water throughout the entire lengths of the blocks. Full length water jackets assure uniformity of cylinder wall temperature and reduce oil temperature. These long water jackets also increase the quantity of cooling water which increases heat absorbing capacity. From the cylinder blocks the cooling water passes upward into the cylinder heads, and then forward to the outlets at the front of the engine.

Radiator cooling efficiency has been greatly improved. A copper cellular core is used which has wide passages to prevent clogging and is reduced in thickness from 4 to 3½ inches. This reduces air restriction and thus reduces underhood temperatures. Width has also been increased $\frac{11}{16}$ of an inch, increasing area more than three per cent. This improves cooling efficiency since

more of the radiator is covered by the fan. The radiator top tank is larger, increasing reserve cooling capacity. The new radiator grille also has greater opening area and provides better air distribution.

A new seven bladed fan having symmetrically spaced blades delivers exceptionally large volumes of air, yet is unusually quiet.

Thermostatically operated radiator shutters are provided. The thermostat is now in the rear of the radiator top tank which improves service accessibility and protects the thermostat from cold air blasts which might otherwise cause irregular operation. The bayonet type of pressure valve filler cap is used.

ELECTRICAL SYSTEM

A large 21 plate 164 ampere hour battery is used in the Sixteen. It is mounted under the right side of the front seat.

The battery is maintained at full capacity by an improved Peak Load Generator. Both voltage regulation and current control features are provided which insure a constant rate of proper charge throughout the car's speed range, depending upon battery condition and the number of electrical accessories in use. Generator charging ability at low speeds has been increased.

An unusual feature of the new Sixteen generator is its drive gear. Both fan and generator are driven by the same dual belts, but a friction generator drive is provided which lifts the generator speed above the fan speed. This is accomplished by a rubber driving ring against which is pressed the generator driving wheel. The fan mounting bracket is adjustable, permitting it to be raised or lowered for belt tension. The generator front cover is secured to the fan mounting bracket so

the generator and its driving wheel may be raised or lowered to adjust the frictional contact between the generator driving wheel and the rubber ring.

The solenoid operated starter is of the six pole type and is operated directly instead of through reduction gearing as in the past.

Ignition System

The Sixteen electrical system is most unusual in that two distributors are used. The left distributor makes and breaks the current for the two iron clad coils and both cylinder blocks and distributes high tension current to the left hand block. The right hand unit distributes high tension current for the right block only. As viewed from above, the left hand distributor rotates clockwise while the right hand distributor rotates counter-clockwise. The two coils are mounted above the distributors on the radiator thermostat housing. The coils are held together by a die-cast base into which the coil lock passes. High tension ignition wiring from the distributors to the 14 mm. spark plugs is concealed and protected by metal conduits.

Circuit Breaker

The entire electrical system is protected against short circuits by a thermostatic circuit breaker. This breaker operates from heat generated by any current overload. After breaking the circuit and as soon as the system cools to normal temperature, it closes again, making the electrical system complete.

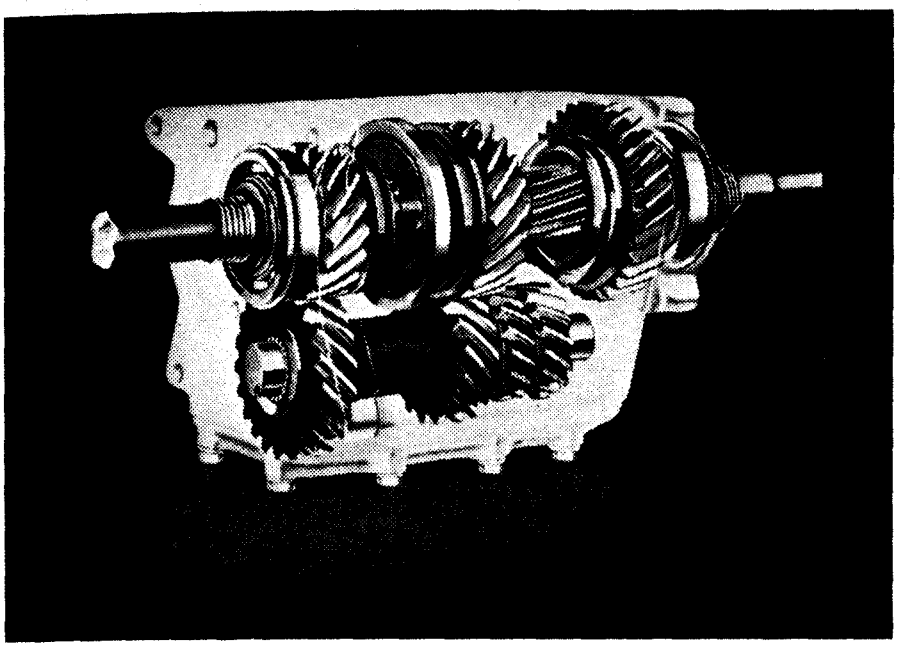
CLUTCH

The clutch is of 11½ inch single dry plate semi-centrifugal design. It is larger in size and capacity, but basically similar in design to the Cadillac V-8

clutch. No spring dampeners are required, however, because of the smooth flow of power from the sixteen cylinder engine.

TRANSMISSION

There is one transmission described in the V-8 Engine Section for all models. This new transmission has been



New, More Durable Transmission

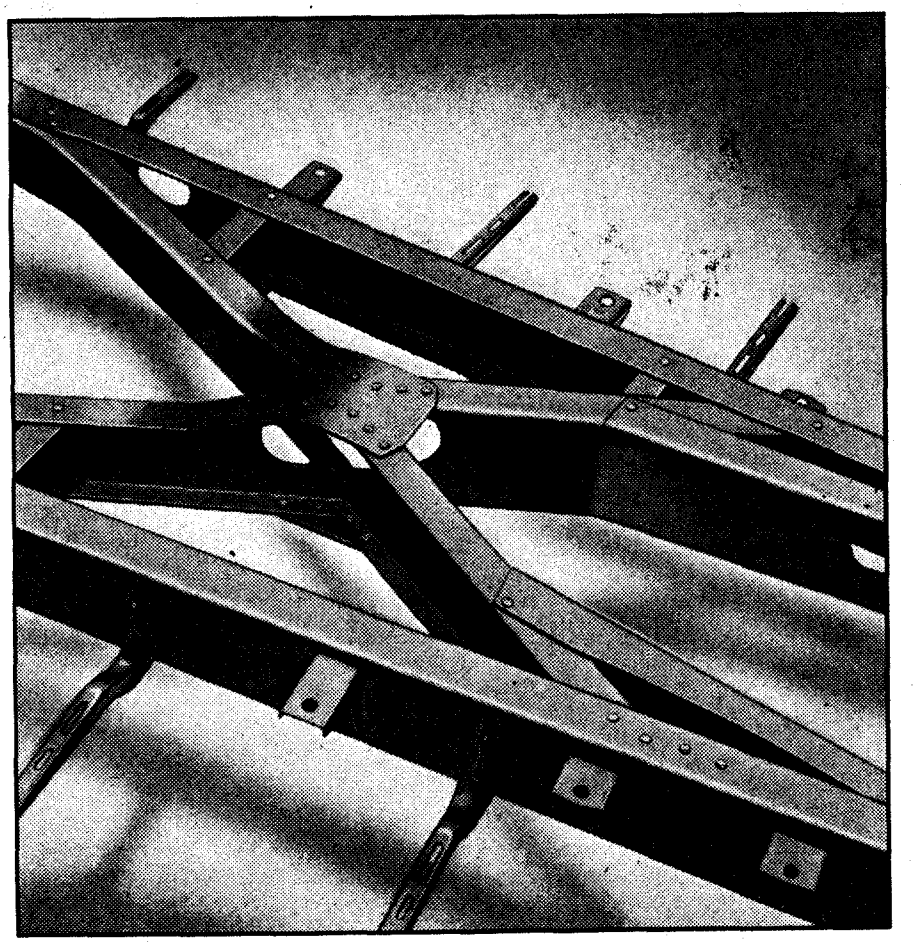
designed and built specifically to meet the Sixteen requirements of durability, dependability and ease of operation.

Syncromatic Shift

Syncromatic Shift, which eliminates all obstructions in the front compartment and is operated in the same manual manner as before, is employed on the Sixteen.

SIXTEEN CHASSIS

To complement its sensational new 135° sixteen cylinder engine, the Sixteen chassis has been entirely redesigned. Wheelbase has been reduced to 141 inches which is an important factor in according the Sixteen with the greatest maneuverability ever accomplished in such a powerful motor car. In spite of the shorter wheelbase every interior body dimension is greater than the previous V-16. Hypoid rear axles and lower frames permit lower floors for greater interior headroom and greater door heights.



Rigid Frame Bracing and Deep Center Junction

Frame

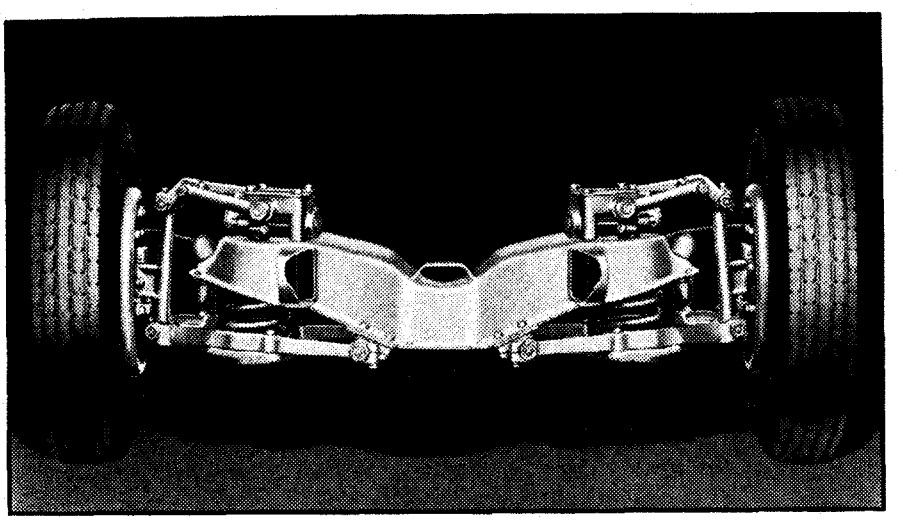
The frame is lower and has been completely redesigned which increases its stiffness by one hundred per cent.

This has been accomplished by using straight sidebars, which space the rear springs more widely and by a new sidebar reinforcement at the front. This latter reinforcement extends forward from each of the X-members and makes a box section with the sidebar and is carried back much farther than before, thus strengthening the junction of the X-members and frame sidebars. An exceedingly great depth of $9\frac{13}{16}$ inches is realized at the central junction of the X-members, an additional factor in increased frame rigidity. Heavy steel plates reinforce the junction at the top and bottom.

The Cadillac front end construction with sidebars extending through the massive cross member at the front of the frame is continued.

Knee Action and Spring Suspension

Cadillac-designed Knee Action, which assures a flat high speed ride and soft boulevard ride and constantly accurate steering geometry, is used on the Sixteen. Identical as to principle with the smaller Cadillacs, structural parts are heavier to meet the necessarily greater strength requirement.



Sixteen Knee Action

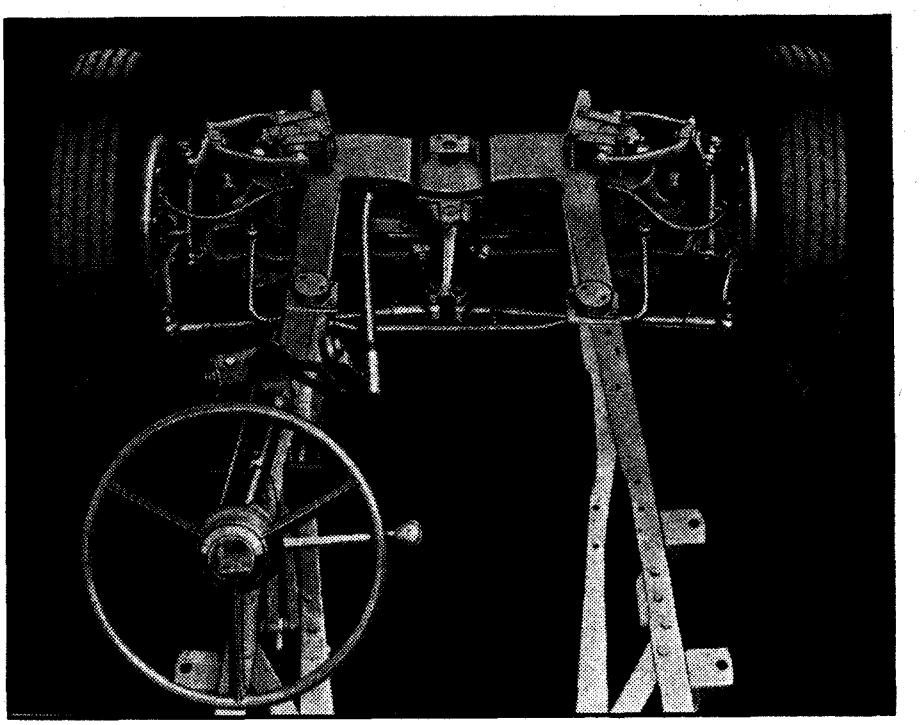
Rear springs are semi-elliptic in design and have been moved $4\frac{1}{4}$ inches closer to the wheels. This im-

proves roadability by reducing roll. Another noteworthy improvement is the use of wax liners between the spring leaves. These liners do not require lubricant, yet prevent squeaks. With liners it has been found that spring covers are detrimental because they act as dirt collectors, consequently no covers are used.

Two-piece rubber bushings are used in the front of the rear spring and in the upper shackle bearing. The lower shackle bearing is threaded. The shackles are of the sturdy double bar design. This method of mounting the springs at each end gives increased riding comfort, quiet operation and eliminates lubrication problems.

Center Point Steering

That easy and quick turning ability in confined areas and steering accuracy for safe handling at high speeds is obtainable in as large and heavy a car as the Sixteen



Sixteen Center Point Steering

is a true engineering accomplishment. This is due to Cadillac-designed Center Point Steering in conjunction with Knee Action.

In cars using the conventional front axle there is an inherent tendency toward wander and pulling from side to side, particularly when braking. This is because the axle rolls forward under braking load. When striking a bump the conventional axle never moves in quite the precise curve to give correct steering geometry. This causes steering wheel whip.

In the Sixteen geometrical relationship of the various parts of the steering system is accurately controlled at all speeds. Each front wheel is directly connected to the frame by rigid forged forked arms which accurately control wheel motion. The upper forked arm is shorter than the lower by a sufficient amount to maintain constant tread regardless of spring deflection. Constant tread prevents sidewise scrubbing of the tire upon the road's surface.

The two steering cross rods are of the same length and parallel to the lower forked arms which avoids errors in steering geometry. They are joined and controlled at the center by a longitudinal drag link. A roller shaft extends from the drag link through the frame sidebar and is straddle mounted on the steering gear housing. The steering gear is of the sturdy worm and double roller design. Two extremely strong universal joints which contribute to handling ease are used in the steering column.

Shock Absorbers

Cadillac's exclusive end-to-end discharge type shock absorbers with dash pot inertia controls at the rear are used on the Sixteen. This is the finest and most costly shock absorber equipment available and provides a degree of luxurious comfort over any kind of road that has never been equalled.

Three point manual adjustment is provided to give a soft, medium, or firm ride in accordance with the owner's preference.

The front shock absorbers are attached to the upper forked arms of the Knee Action assembly and control compression and rebound action of the helical coil springs.

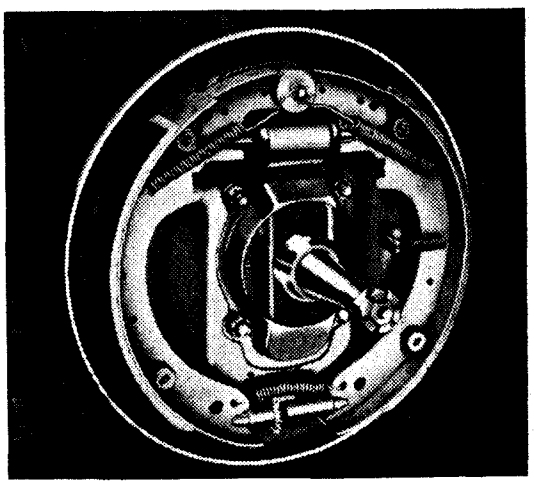
Double Ride Stabilizers

Another important chassis refinement on the new Sixteen is the adoption of a cross link rear stabilizer. This stabilizer is effective in reducing body roll and also provides rear axle control reducing body shake on choppy road surfaces.

The front stabilizer is of rigid torsion shaft construction and is mounted behind the Knee Action arms. This stabilizer insures handling stability at high speeds on curves or steeply crowned roads.

Hydraulic Brakes

Self-energizing hydraulic brakes are used on the Sixteen because these give the finest combination of positive



Sixteen Hydraulic Brake

braking action, free from the need of frequent adjustment, longer brake lining life and ease of operation. Moulded linings with a total of 258 square inches area

are used for durability. Drums are of expensive composite design and are ribbed for cooling.

Braking ratio is 57% front and 43% rear.

Hotchkiss Drive

The Hotchkiss type of drive is particularly suited to Sixteen chassis requirements because of its long wheelbase and weight. This type of drive contributes to riding qualities by reducing unsprung weight and by cushioning starting and stopping strains from the rear axle through the rear springs before they reach the frame. Rear axle action over rough roads is restrained because the wheels are allowed to follow road irregularities freely.

The propeller shaft is four inches shorter which improves high speed smoothness. Refinements in design of the universal joint flanges serve to maintain the precision balance of the propeller shaft after assembly.

There are two needle bearing universal joints which are permanently packed with lubricant.

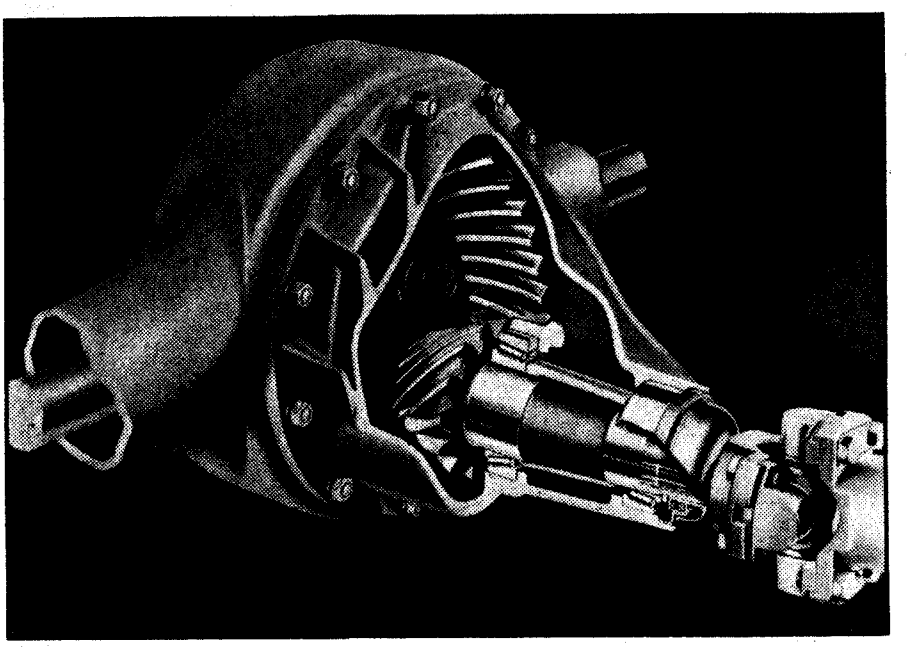
Hypoid Rear Axle and Differential

A new hypoid rear axle has been designed for the Sixteen which incorporates the most advanced engineering with structural durability features exclusive to Cadillac precision manufacture. The basic principles follow those which proved so satisfactory in the previous LaSalle and Cadillac 60 with one exception. Instead of a shim adjustment for the differential bearings, the sleeves which hold these bearings in position are threaded so that adjustment is effected by rotating the sleeve.

The new semi-floating axle is unusually strong for its weight. A cylindrical differential housing which encircles tapered roller differential bearings is carried within a heavily ribbed carrier. The axle cover is

welded into position to increase housing rigidity. Bronze thrust bearings are used between the two differential pinions and the housing. The ring gear diameter is eleven inches.

All gears are carefully ground, finished by Cadillac's famous lapping process, and matched individually by hand into sets. Each axle housing is manufactured for its own particular set of gears.



New, Unusually Strong Hypoid Rear Axle

The phenomenal performance of the Sixteen is partially due to a carefully selected 4.31 to 1 rear axle ratio. This is a large reduction from the previous V-16, made possible by decreased weight, and also accounts for the exceptionally low piston travel of the new sixteen cylinder engine.

1938

Your CADILLAC V-16

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GENERAL MOTORS SALES CORP.
Printed in U. S. A.

You are a valued customer of the Cadillac Motor Car Division. We are anxious, therefore, that you secure the best of service from your car, and we have prepared this book to help you. We welcome any suggestions or questions* at any time regarding this book, our Authorized Service Stations, or the car itself.

Service Department
CADILLAC MOTOR CAR DIVISION
General Motors Sales Corp.

*In writing to us on matters pertaining to your car, always give the ***engine number***. The engine number location is described on page 56.

As the Owner of a new Cadillac

You will want to know—

RIGHT AWAY

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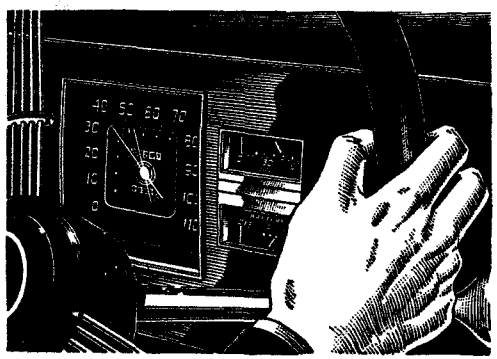
License Data 56

The Break-In Period

Strictly speaking, your Cadillac car does not require a break-in period, for it is never necessary to drive at speeds below a specified maximum. We nevertheless urge that you drive at moderate speeds during the first 500 miles, even though it is only to accustom yourself to the handling of the car.

One definite precaution must be observed during this period. When driving a new car at speeds over 40 miles per hour, let up on the accelerator for ten or twelve seconds at frequent intervals. The important thing is not miles per hour, but avoiding continuous high speed.

A newly-built car will not develop its maximum speed and power or demonstrate its best fuel and oil economy during the first 2,000 miles. Regardless of how carefully an engine is built, this "running-in" period always improves its performance. Keep this in mind when checking performance during the first few weeks of ownership, and do not attempt maximum speeds until after 2,000 miles.



The ***Right*** Gasoline

The Cadillac V-16 engine provides all the benefits of modern high compression design, which means that it operates most efficiently with ethylized or other high-octane fuel. The V-16 engines are accordingly adjusted at the factory to perform at maximum efficiency with a premium grade fuel, such as "Ethyl" gasoline.

The use of the so-called "regular" (70-octane) gasolines is possible but not recommended, as these fuels will not permit the engine to develop its full power, and they will cause excessive "knock" or "ping" unless the spark is retarded.

The most important thing is to buy your fuel from a reputable company in order to insure uniform quality and freedom from impurities that might clog the strainers or cause harmful chemical action in the engine. Your Authorized Cadillac-LaSalle Service Station can advise you regarding the most suitable grades of gasoline available locally, or adjust your engine for the grade of fuel you prefer to use.

The gasoline tank capacity is 26 gallons.

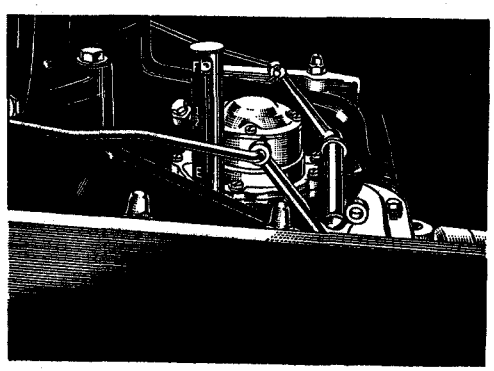
The ***Right*** Engine Oil

During the first 1,000 miles, the lighter grades of engine oil must be used. When it is necessary to add oil use nothing heavier than 10W in winter or 20W in summer.

At the end of 1,000 miles the oil originally in the engine should be drained and replaced with oil of the correct grade. The grade depends upon the season of the year and the type of driving, as explained on pages 37 and 38.

In checking the engine oil level between oil changes, there is only one safe rule: ***Check the oil level every time gasoline is purchased and add oil as required.*** Oil will not be required every time, but it is better to check the level unnecessarily a dozen times than to miss the one time that more oil is needed.

The engine oil filler is located in the center of the engine vee, just ahead of the carburetors.* The float type oil gauge, which reads "F" (full), "½", and "E" (empty), is located at the rear of the engine vee. Add oil whenever the level is below "F", but add ***only enough*** to bring the level up to "F".



*Raising the hood is explained on page 8.

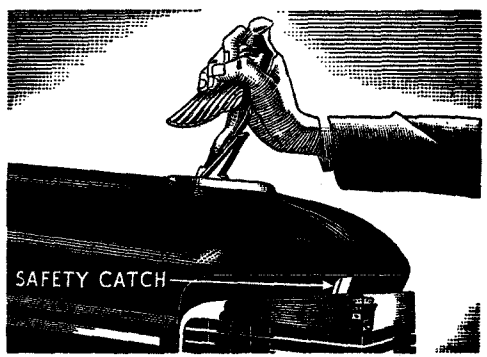
Cooling Liquid Level

The radiator filler cap is also located under the hood. The fluid level should be checked at least once every week or ten days.

Ordinarily only water needs to be added at these times, although, if any considerable quantity is required during cold weather, the strength of the anti-freeze solution should be tested. When the cooling system is drained and refilled, it is necessary to use anti-rust solutions in summer and anti-freeze in winter. The correct solutions for these purposes are discussed on page 48.

Caution—When removing the filler cap from a hot engine, rotate the cap toward the left until the stop is reached. This is the vented position, which allows steam to escape. Keep in this position until the pressure in the system has been relieved, then turn more forcibly to the left to remove. Turn the cap all the way to the right when reinstalling.

Raising the Hood is accomplished by tilting the radiator ornament back to release the first catch, after which the hood can be lifted high enough to permit reaching in and releasing the safety catch. When lowering the hood, make sure that both catches are fastened.



Tire Pressure

The tire pressure is the fourth item requiring frequent attention. All tires, including spares, should be checked every week or ten days,* and maintained at the correct pressure of 32 pounds minimum.

Check the pressure when the tires are cold, preferably in the morning, and never after a fast run. Heat developed on fast runs or from hot pavements increases the pressures and they decrease again when the tires cool.

Frequent checking is essential with low pressure tires, as variations of only a few pounds make an appreciable difference in riding qualities and tire wear.

Always unlock the rear compartment lid or the fender-well tire covers, and have the attendant check the spare tire while he is checking the others.

The procedure for changing wheels when a tire is flat is given on page 52.

★ ★ ★

The regular attention required by your Cadillac car, in addition to the four topics just covered, includes lubrication at 1,000 mile intervals and a few items of general care, all of which are explained on pages 36 to 43. Read these pages before your car has traveled 1,000 miles.

*When touring and covering several hundred miles a day, check the tire pressure every day or two.

Instruments and Controls

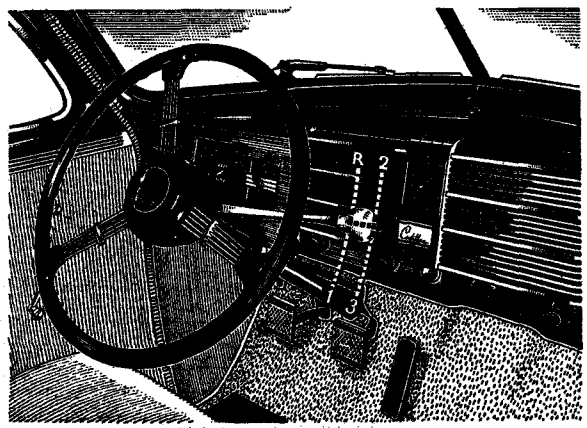
Comfort and convenience for the driver contribute to greater safety, as well as to more enjoyable driving. The Cadillac driver's compartment has been designed with this in mind. Note the following:

The seat adjustment is easily made by lifting the catch on the left side of the seat base and sliding the seat backward or forward to the most comfortable position. On long trips, changing the adjustment occasionally will be found helpful in avoiding fatigue.

The ignition switch, starter button, and lighting controls —the radio, when installed—are convenient to the driver's right or left hand, and the instrument dials are grouped for best visibility.

The transmission control and hand brake levers are out of the way, yet within each reach of the driver.

The transmission control lever is operated in the conventional manner. Lift the knob and move rearward to engage low gear or forward to engage reverse; depress the knob and move it forward or rearward to engage second and high gears respectively.



Gasoline Gauge

The gasoline gauge is operated electrically. It indicates the quantity of fuel in the tank ***only when the ignition is turned on.*** When the ignition is turned off, the pointer drops beyond the "empty" mark.

As an extra precaution against running out of fuel, the gauge is so calibrated that it reads "empty" when about one gallon still remains in the tank. On this account, it is seldom possible to add the full capacity of the tank when the gauge reads "empty."

"Battery" (Ammeter)

In place of the ammeter, a battery charge or discharge indicator is used. This gauge should indicate "charge" as soon as the car is running 15 to 20 miles an hour. If it fails to do so, or if it shows a discharge when the engine is not running and no electrical equipment is in use, the cause should be investigated immediately.

Oil Pressure Gauge

The oil pressure gauge should always show pressure while the engine is running. If it does not, stop the engine ***at once*** and investigate the cause.

Temperature Indicator

The temperature of the fluid in the cylinder blocks is shown on this dial.

The needle should register within the "normal" range except on long, hard drives in summer weather, when it may register "hot." This condition need not cause alarm, as the pressure-operated overflow will normally prevent water losses at temperatures up to 220°F.

When the engine does run hot on long drives, it is important to check the oil and water levels frequently. Observe the precaution given on page 8 when checking the water level.

The indicator often rises to "hot" right after the engine is shut off. This condition is entirely normal. It is due to the heat that remains in the cylinder blocks after air and water circulation have stopped.

If the indicator should show "hot" during short runs under normal driving conditions, the cause should be investigated.

Clock

The instrument panel clock is electrically driven and fully automatic in operation. Interruptions in the current will naturally cause the clock to stop. After the current has been reconnected, it is necessary merely to reset the hands, as the resetting mechanism will again put the clock in operation.

A regulating knob for correcting fast or slow operation is located below the instrument panel flange. A small dial showing movement of the regulator is part of the clock face.

Ash Receiver

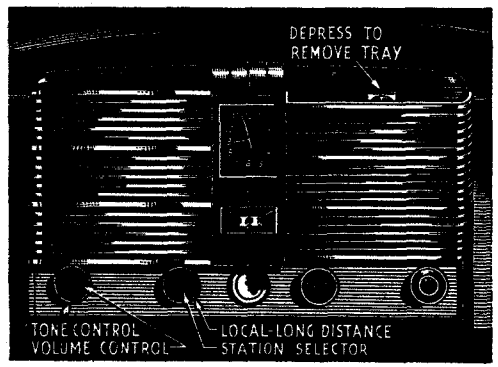
To open the ash receiver (see below), push in on lower edge of right hand grille. To remove tray for emptying, depress spring bar indicated in the illustration.

Radio

Although the Cadillac-LaSalle radios are sold as accessories, the proportion of owners who purchase them is so large that the radio control knobs and speaker grille are made a part of the standard instrument panel, and radio operating instructions are made a part of this book.

The knob at the left is the switch and volume control. Turn clockwise to switch radio on and to increase volume. The outer ring is the tone control. Turn this clockwise for best speech reception; counterclockwise for the deep bass effect.

The knob at the right is the tuning knob or station selector. The outer ring is the local-long distance switch. When turned clockwise it provides noise-free reception in the city or close to broadcasting stations; when turned counterclockwise it provides maximum distance getting ability.



If you have not purchased a Cadillac radio, we suggest that you secure a demonstration of their performance from your Cadillac - LaSalle dealer.

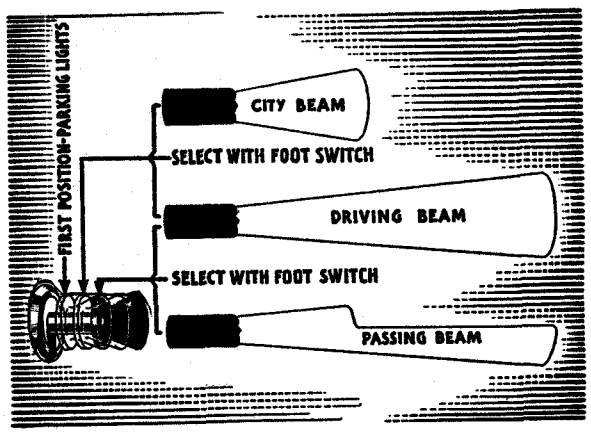
Lighting Controls

Two types of lighting are available in the driving compartment—the dials of all instruments are lighted from the edges, while direct light for the ignition switch and for reading maps is provided by the lock lamp.

The two-position switch for these lamps is mounted on the instrument board flange just below the center panel. In the left-hand position, the instrument lamps are lighted, but only if the headlamps are also turned on. In the right-hand position, the instrument lamps and lock lamp are lighted, regardless of the headlamps.

The headlamps are controlled by two switches: a three position button at the left of the instrument panel and a foot switch below the clutch pedal. The beam in use at any time shows up in illuminated letters on the indicator.

The three headlight beams and the lighting switch positions are illustrated clearly in the drawing at the right.

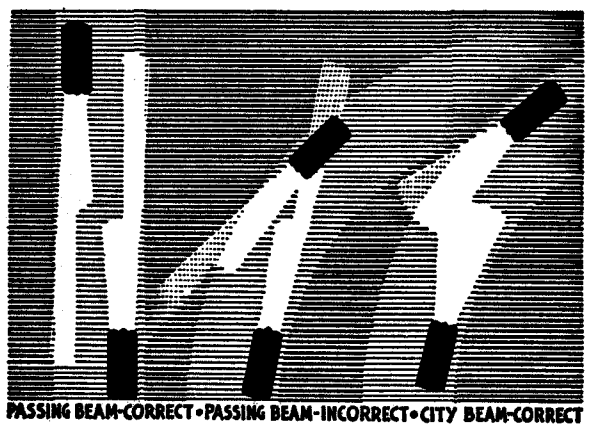


When driving on lighted highways, set the hand control in the second position and select the "city" beam with the foot switch.

When driving on unlighted ***straight*** roads, set the hand control in the third position. Select the "driving" beam with the foot switch, but change to "passing" whenever a car from the opposite direction approaches within 500 feet.

When driving on unlighted ***winding*** roads, set the hand control in the second position, and use the foot switch to select the "driving" beam and to switch to the "city" beam whenever another car approaches. The "city" beam is the only safe passing beam for winding roads. (See drawing below.)

Courtesy and safety both demand the use of the passing beams exactly as outlined. We urge every Cadillac owner to observe these instructions faithfully, as carelessness in these matters is leading authorities to consider further restrictions of headlamp driving beams. Please cooperate in safe use of adequate lighting equipment.


PASSING BEAM-CORRECT • PASSING BEAM-INCORRECT • CITY BEAM-CORRECT

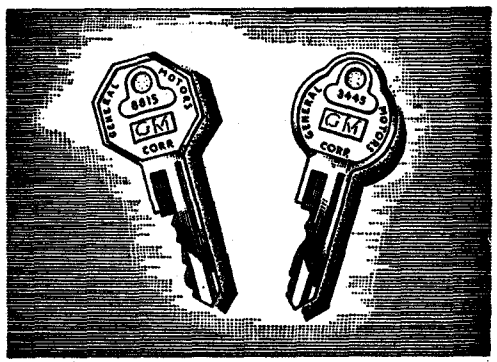
Locks and Keys

Maximum protection is provided by the Cadillac system of locks and keys. Two sets of two keys each are furnished with the car. The octagonal-handled key is the driver's key; it operates the front doors, the ignition switch, and the spare wheel lock on cars equipped with fenderwells.

The round-handled key operates the compartment locks, including those for the instrument panel compartment, the rear deck on Coupes, and the trunk compartment on Sedans. The advantage of this arrangement is that baggage can be kept locked while the car is left with public garage or parking lot attendants.

As a protection against unauthorized persons securing keys, the key numbers do not appear either on the keys or the face of the locks, but on small metal slugs fastened in the keys. Mark these key numbers on your Certificate of Title or Bill of Sale, as soon as you take delivery of the car, and have your dealer knock these number slugs out of the keys and destroy them. If this is not done, you lose part of your protection.

Duplicate keys, if required, can be ordered by key numbers from the nearest Authorized Cadillac-LaSalle Service Station. If the key number is not known, you must order by car engine number from your own dealer or from the Cadillac Motor Car Division, Detroit.



Door Locks—The doors can all be locked from the inside by pushing down the small lock button. They can also be locked from the outside with the button by depressing the button while the door is open and then ***holding the door handle all the way down*** while closing the door. The button snaps to the unlocked position when the door is closed in the usual fashion.

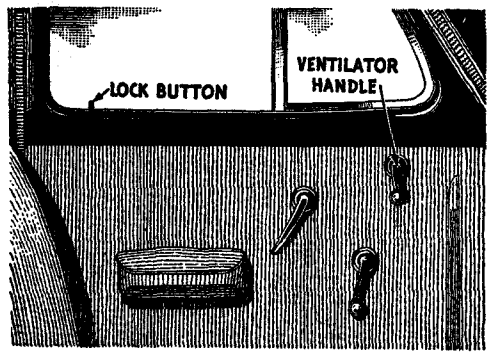
The front doors can be locked and unlocked with the driver's key. They can also be locked with the lock button and when so locked, the key will unlock them. ***Be careful not to lock the keys in the car when locking doors with the lock button.***

Lock your car. Never leave it unlocked when unattended.

Ventilation

The ventilating panes in the front door windows and the rear windows of sedans can be pivoted to secure any degree of ventilation, with a minimum of drafts.

In cold weather or in rain or snow, they can be opened slightly to provide just enough air circulation to prevent window and windshield steaming or fogging.



In extremely hot weather, the front ventilators can be turned almost completely around to a position that will "scoop" air into the car.

Additional air can be secured in warm weather through the cowl ventilator, which is screened to keep out insects, etc.

Starting the Engine

Automatic features have greatly simplified the starting procedure. First of all, press the accelerator pedal slowly to the floorboards. This "sets" the automatic choke. Then depress the clutch pedal, switch on the ignition and press the starter button at the left of the panel. Built-in carburetor controls provide the correct starting mixture and idling speed.

The engine should start in from 5 to 25 seconds of cranking. If it does not, release the starter button and look for the cause:

Check the contents of the gasoline tank.

See that the throttle button is pushed in to the dash, especially in cold weather.

Make sure the ignition key is turned all the way on.

Crank the engine with the accelerator pedal held all the way down to open the throttle fully. This will correct any tendencies to a flooded or over-rich condition.

Do not run down the battery by too much use of the starting motor when the engine does not start readily. First find the cause; otherwise the battery may be run down sufficiently to make starting impossible.

If a ***hot*** engine is hard to start, open the throttle fully by pushing the accelerator slowly to the floorboards, and then crank the engine. Release the accelerator after the engine starts.



Cold Weather Operation

Winter weather brings no inconvenience to the Cadillac owner who has his car properly prepared for low temperatures and who follows correct procedures in starting and driving. Winter preparation of your Cadillac consists of the following:

Adequate servicing of the cooling system for cold weather, including the use of an approved anti-freeze, (Page 49).

Draining the engine crankcase and refilling with 10-W or 20-W engine oil, according to the lowest temperature expected, as explained on page 37.

Cleaning the gasoline lines and filter.

Checking up on the mechanical condition of the engine, particularly the valves and ignition, to make certain that the engine is properly tuned.

Inspecting the storage battery to see that it is fully charged, that the connections are clean and tight, and that the charging rate is adequate.

Starting the engine in cold weather requires the same procedure as at other times, but with emphasis on the following precautions:

1. Use of 10-W or 20-W oil to assure free cranking.
2. Always depressing the clutch pedal when cranking the engine, to relieve the starter of the load of turning the transmission gears.
3. Making sure by regular tests that the battery is kept fully charged or nearly so.

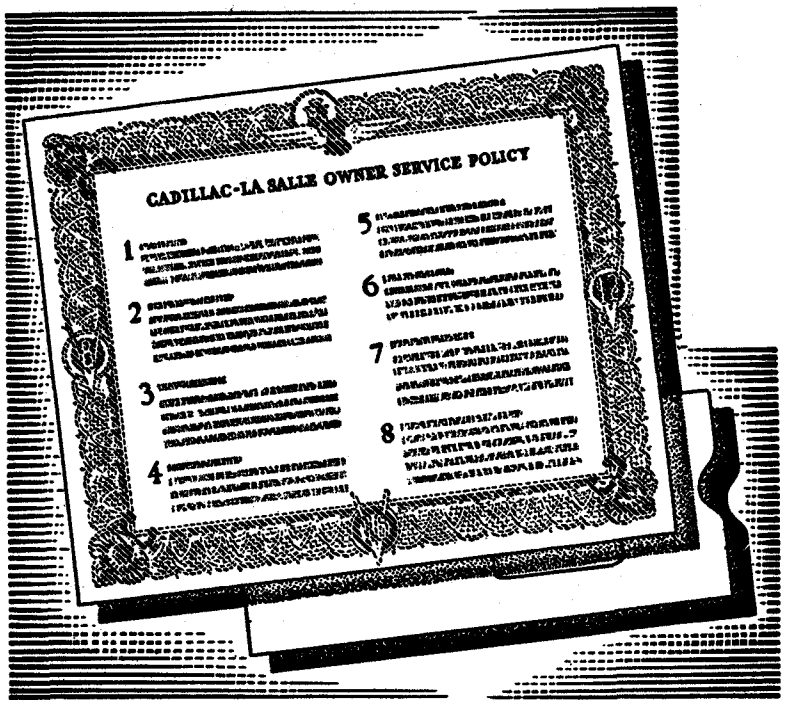
After the engine has started, it is a good plan to engage the clutch gradually while the transmission is in neutral to permit the engine to free up the lubricant before the car is driven. ***Always let a cold engine warm up for at least 30 seconds before driving the car.*** Do not open the throttle suddenly to race the engine during this period.

Cold weather driving can be made much more comfortable by the installation of a good car heater. Your Cadillac-LaSalle dealer can supply you with an approved type of heater. Ask to see these heaters.

Cadillac LaSalle Service

As a purchaser of a new Cadillac car, you will be interested in knowing what you are entitled to under the Cadillac-LaSalle Owner Service Policy, and what you can expect at Authorized Service Stations.

The Owner Service Policy Certificate is illustrated below and described on the opposite page. Immediately following is a brief discussion of Authorized Service.

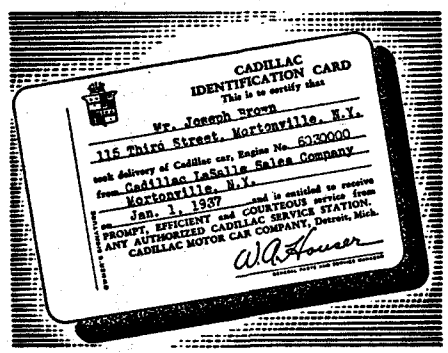


Owner Service Policy

When you took delivery of your car, you received from our distributor or dealer an "Owner Service Policy Certificate," which we ask you to read carefully at this time, if you have not already done so.

You will note from your Certificate that you are entitled to a number of privileges, including: free inspections and adjustments during the first 90 days or 4,000 miles of ownership, replacement without charge of any parts adjudged by this Company to be defective under its Warranty, and free inspections at any time, provided no disassembly of parts is required.

You are also entitled, when touring, to the same consideration from ***any*** Authorized Service Station as you would receive from the service station of the dealer who sold the car, by merely presenting your Identification Card. This card will be sent to you by the General Sales Manager of the Cadillac Motor Car Company as soon as delivery of your car has been reported. ***Sign this card as soon as it is received and always carry it with you when touring.***



As an aid to touring owners, Authorized Service Stations are listed under the Cadillac-LaSalle trademark in the classified telephone directories of most of the larger cities.

Authorized Service Stations

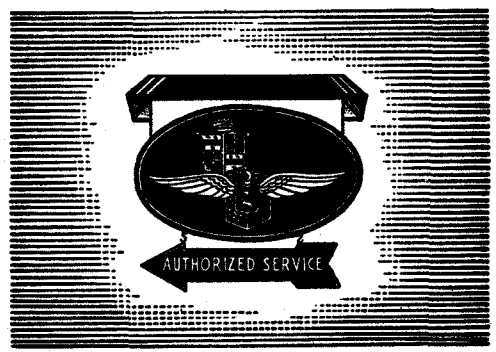
We want to take one page of this book to recommend Authorized Cadillac-LaSalle Service Stations.

Your V-16 Cadillac deserves the best of care, and any service work it may require should be performed only by experts. Authorized Service Stations are qualified to take care of this work in a manner that cannot be duplicated elsewhere.

They have the obvious advantages of specialized experience on Cadillac cars, of the use of genuine Cadillac parts, and of adequate tools and equipment. Their workmen, too, secure the benefits of continuous training on up-to-date Cadillac servicing methods by means of regular publications and special bulletins supplied exclusively to them by the Cadillac factory.

Furthermore, keeping Cadillac owners well satisfied with their cars will pay dividends in future car sales to Authorized dealers. For this reason alone, no one else will have as great an interest in keeping your car performing at its best.

Our interests coincide in this matter of servicing your car and we urge therefore that you patronize Authorized Service Stations.



Tire and Battery Warranties

The tires and battery on your Cadillac car are covered by separate warranties by their respective manufacturers.

All tires supplied as original equipment carry the following tire manufacturer's warranty:

"Every tire of our manufacture bearing our name and serial number is warranted by us against defects in material and workmanship during life of the tire to the extent that if any such tire fails because of such defect, we will either repair the tire or make a reasonable allowance on the purchase of a new tire."

The battery in your car is guaranteed for 90 days, but if you will have it registered ***immediately*** with a Delco Battery Service Station, you can obtain an Adjustment Policy Service Certificate which protects you for 21 months or 21,000 miles. Your car dealer will be glad to assist with this important matter.

Suggestions

for

Safer Driving

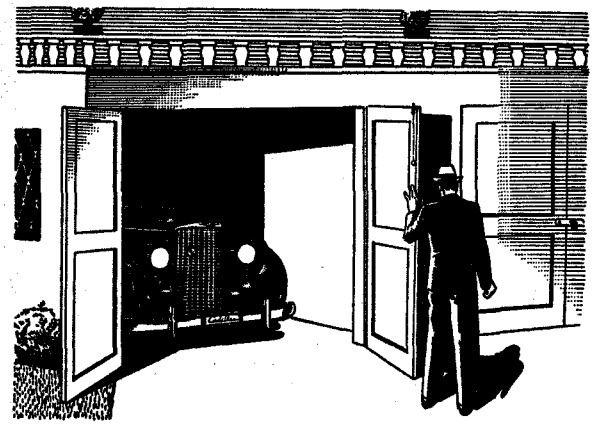
Everyone knows how to drive these days but, judging by accident records, everyone does not know how to drive safely. Although Cadillac drivers as a class are more careful and skillful than the average, we are including this section to enable you to check up on your technique and modernize it where necessary.

The suggestions on the next few pages are not driving lessons; they are simply reminders of ways to make your driving safer and more comfortable. We ask that you read them all. Most of them will be familiar but worthy of review. And among them there will certainly be some that are new and well worth the few moments required to read the entire section.

Carbon Monoxide

Always open the garage doors before starting the engine. The engine exhaust always contains carbon monoxide, a deadly poisonous gas, which must be allowed to escape outside the garage.

Under normal starting and warming up conditions almost any automobile engine running in a two car garage, with the doors closed, will accumulate enough gas in three or four minutes to overcome any occupants. In cold weather, when the engine requires more choking, the accumulation is even more rapid.



Starting the Car

Skillful driving includes the ability to coordinate the operation of the gear-shift lever, clutch and accelerator in a way that will start the car in motion and take it through the gear changes without jerk or jar. The smoothly acting clutch and Syncro-Mesh transmission with which the Cadillac car is equipped provide the best kind of assistance for these operations. The following principles of gear shifting will enable you to check up on your own driving habits.

Normally a car should be started in low gear. It will move off more smoothly and pick up speed more quickly and—with the Synchro-Mesh transmission—the shift into second can be easily and quietly made.

Note: Gear clash when shifting into low is caused either by not pushing the clutch pedal all the way down or by not waiting 2 or 3 seconds to allow the gears to stop spinning.

The shift into second can be made as soon as the car has gained enough momentum to travel 5 or more miles per hour. The shift into high can be made at any speed above 15 miles per hour.

In moving the gear shift lever of a Syncro-Mesh transmission, never jerk the lever. Always move it with a steady deliberate motion to permit the synchronizing mechanism to function.

Stopping the Car

You have probably observed, in using your brakes, that the pedal pressure and pedal travel required are both very slight. This is due to the design of the Cadillac brakes with their hydraulic linkage and their self-energizing shoe action.

Stopping the car, as you know, generates heat at the brake linings and drums, and results in wear of the brake linings. Maximum lining life can be secured by avoiding emergency stops as much as possible. On approaching a stop sign or red traffic signal, coast up to the stopping place ***with the engine in gear*** and apply the brakes early with gradually increasing pressure, releasing the clutch ***just before*** the car is brought to an easy stop.

Applying the brakes with the clutch engaged is essential in slippery weather and it is advantageous at all times. You must, of course, remember to disengage the clutch just before you stop or you will stall the engine.

In bringing the car to a stop from high speeds, in stopping on icy pavements, or in going down long hills, the efficient way to slow up the car is by a succession of "snubbing" actions of the brakes rather than by continuous pedal pressure.

It is better not to use brakes at all at extremely high speeds except in case of emergency. If possible, coast down to 50 or 60 M.P.H. before applying them.

Night Driving

The first requirement of safe night driving is adequate lighting, and in this the Cadillac system excells. The headlights have been designed with highly efficient driving and passing beams. Selecting these beams is performed safely and easily by means of the foot-operated switch at the left of the clutch pedal.

The generator charging circuit is also designed to meet the requirements of night driving. The voltage regulation does not decrease the charging rate at high speeds, but operates in accordance with the current required for lights, radio and other electrical equipment.

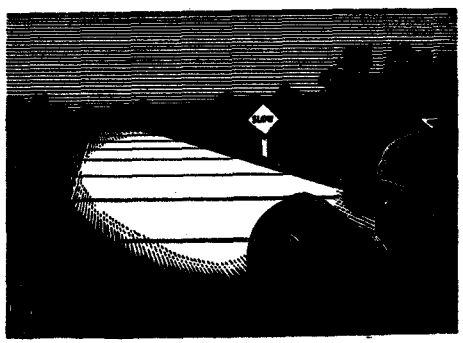
Your safety ultimately depends, however, on wise use and proper care of this equipment. Observe the following rules in driving at night:

Keep your speed low enough at all times to permit stopping within the distance illuminated by your headlights.

When passing other cars, use the correct passing beam. Watch the right hand edge of the road. Do not look into the lights of the approaching car.

Have your headlamps cleaned and re-aimed twice a year.

In fog at night, ***slow down*** and switch the lights to the "city" position.* This reduces to a minimum the glaring reflections from the fine drops of moisture in the air.



*Better yet, secure a set of Cadillac fog lights.

Winter Driving

Aside from preparation for cold weather (page 19) and using the correct procedure for starting and warming up the engine, the chief problem of winter driving is handling the car on roads made slippery by snow and ice.

The important thing on ice is never to attempt to do anything suddenly. Do not attempt sudden starts, sudden stops, or sudden turns; otherwise spinning wheels or skidding is inevitable.

In starting the car on icy pavement, the trick is to turn the rear wheels ***very slowly*** Shifting into low gear and engaging the clutch slowly without racing the engine will avoid most difficulty with spinning and slipping.

Stopping on icy pavements is even more troublesome. To stop successfully, it is necessary to slow down quite a distance from the stopping point, applying the brakes in a series of brief moderate movements, instead of with continuous pressure. The clutch should not be disengaged until the car has almost stopped.

Taking slippery curves or turns without skidding can be readily accomplished by treating each turn as though it were going to be a stop. In other words, approach the turn very slowly and then, when you are actually in the turn, press the accelerator ***lightly*** to apply some power to the rear wheels. With power turning the wheels, a skid is less likely to occur.

If the car should start skidding, turn the front wheels in the direction of the skid, and take your foot off the accelerator. Do not apply the brakes.

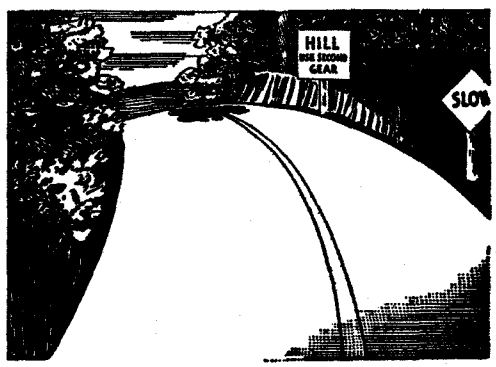
Tire chains on the rear wheels are often helpful in securing more traction, especially in mud or deep snow.

Mountain Driving

In going ***up*** a steep hill, the important thing is to get a good start. If you don't get a good start, or if the hill is too steep, shift to second gear while the car is still travelling between 20 and 25 miles per hour. Waiting until the speed is less than this increases the danger of stalling.

In going ***down*** a long hill, always keep the car in gear and, if necessary, shift to second or even to low gear. ***Use the same gear in descending a hill as was required to climb it.*** When second gear must be used in descending a hill, it is best to shift before beginning to descend, although the Cadillac Synchro-Mesh transmission permits shifting at any time with a minimum of effort. In shifting from high to second, remember to move the gear shift lever ***deliberately*** to give the synchronizing mechanism time to function.

Above all, keep to your own side of the road and never pass another car when approaching the crown of a hill, on a curve, or in any circumstances when the view ahead is in any way obstructed.



Touring

Touring usually means higher speeds, unfamiliar roads, and new and interesting scenery. Driving under these conditions demands that you pay more conscious attention to the details of handling your car, and that you pay particular attention to the following:

Keep an eye on the speedometer. With the quietness of the Cadillac engine and chassis, and the smooth ride provided by the Cadillac spring suspension, it is extremely difficult to judge your speed. Let your speedometer keep you from over-driving your range of vision, especially at night.

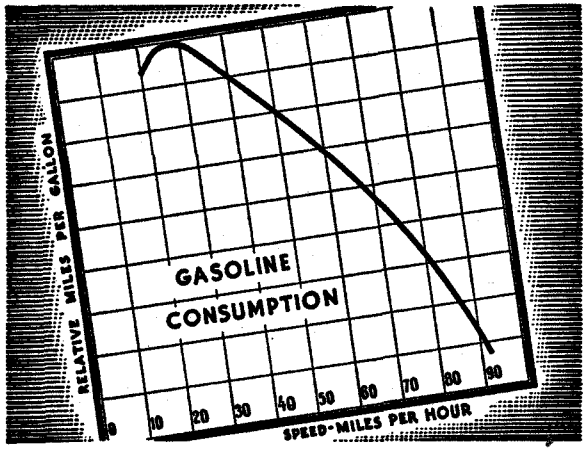
Take plenty of room in overtaking other cars. In passing a car that is going 40 miles an hour, you must travel the same distance required to pass at least 18 cars parked together along the road. Then add in the speed of the car coming the other way and you can see that plenty of room is required. Do not cut in ahead of a car you are passing until you can see it in your rear view mirror.

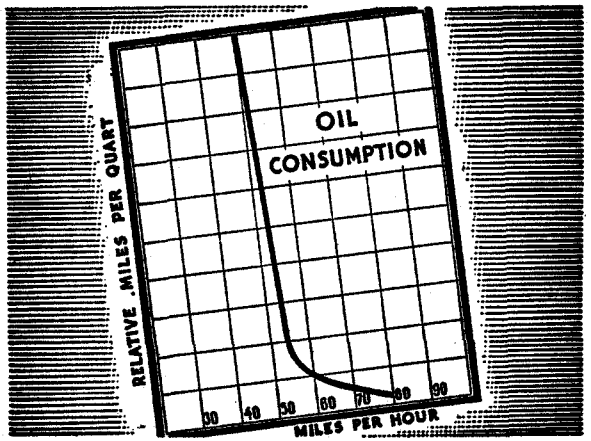
Take turns at safe speeds. The best technique for doing this is to apply your brakes when approaching the turn, enter it at reduced speed and then accelerate as you come out on the straightaway. This method is not only safer but it also enables you to make better time.

Before shutting off the engine after a long hard drive, especially in hot weather or mountain driving, let the engine idle for 2 or 3 full minutes. This will usually cool the engine sufficiently to prevent boiling and loss of water, and will make starting easier as well.

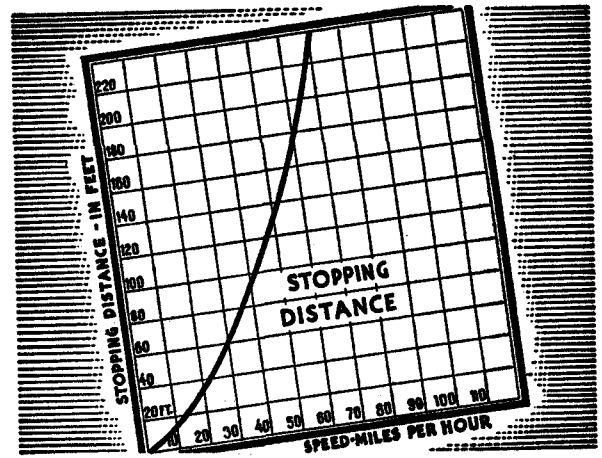
High Speed Driving

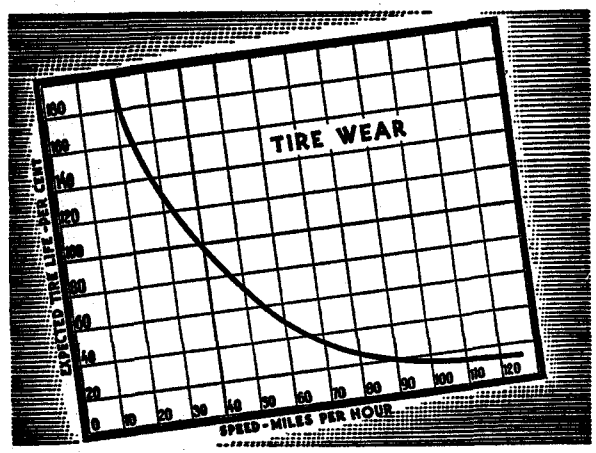
Your V-16 Cadillac automobile will travel at almost any speed you may wish to drive. Experienced drivers realize, however, the element of danger in speed and attempt maximum speeds only when conditions are extremely favorable.





Considerable attention is being given to the effect of high speeds on the car, particularly in regard to fuel consumption, oil consumption, tire wear, and brake effectiveness. In order that Cadillac owners may have the facts on these important items, we are reproducing on these pages four charts which make these items clear. A brief review of these facts will indicate why many wise motorists are touring at more moderate speeds—from 45 to 55 M. P. H.





Gasoline Economy

The number of actual miles per gallon that any owner gets from any car depends upon a large number of factors, some of which the owner can control and some he cannot. Factors over which the owner has little, if any, control are the condition of the road surfaces, the number of hills and turns, the amount of traffic, and the climatic conditions, particularly the wind and temperature.

Careful attention to the controllable factors will, however, enable any owner to increase considerably his gasoline mileage. The factors to be considered are:

1. Speed—The charts on pages 32 and 33 indicate emphatically how much you can save by driving at moderate speeds.

2. Stopping—Coast to a gradual stop whenever possible. This saves both fuel and brake lining.

3. Idling—Shut off the engine while parked, even for a few minutes, in front of stores or homes, or when waiting for long freight trains at railroad crossings. Idling, except to warm up a cold engine, is sheer waste.

4. Lubrication—Keep both the engine and chassis well lubricated at all times.

5. Tires—Keep your tires properly inflated to avoid excessive road friction.

6. Mechanical Condition—Your engine must be kept "in tune" to use its fuel economically. Periodic adjustments of the ignition system and occasional valve regrinds will pay for themselves in gasoline saved.

Tire Life

Maximum tire life can be secured by careful attention to a few essential details of care and driving habits, namely:

1. Keep the tires properly inflated at all times.

2. Avoid spinning the wheels when starting.

3. Avoid sudden stops.

4. Turn corners at moderate speeds.

5. Steer around bumps, ruts, or minor obstructions in the roads.

6. Keep out of car tracks.

7. Do not bump or scrape the curb when parking.

8. Keep the front wheels in proper alignment.

9. Interchange the tires, left to right, and front to rear, every 4,000 miles.

Lubrication

In order that your Cadillac car may deliver throughout its life, the performance built into it, we urge you to protect your investment by conscientious observance of all of the items recommended in this chapter.

> NOTE: These lubrication items are given for your guidance only, and not to encourage you or your chauffeur to perform the work. Lubrication is best performed with the efficient, specialized equipment used in up-to-date service stations, and there should be no occasion for resorting to the slow, untidy, ineffective methods of former years.

Authorized Lubrication

Lubrication operations can be performed most satisfactorily by your Authorized Cadillac-LaSalle service station. In addition to having the specialized equipment previously referred to, they also have the correct lubricants, complete instructions, and experience on Cadillac cars.

When a lubrication operation is performed at an Authorized Service Station, the number of the ***next*** lubrication and the mileage at which it is due will be posted on the crest shaped plate on the left front door pillar. When this mileage appears on the speedometer,



the car can be taken to any Authorized Service Station and, by asking for "schedule lubrication," the car will receive the exact lubrication required.

Authorized lubrication service can be purchased at a special rate by means of the Lubrication Agreement. Ask your dealer about this money saving plan.

Engine Oil Recommendations

The proper selection of a crankcase oil will add much to the performance, reliability, economy and long life of your engine.

During the first 1000 miles use the oil that was in the crankcase when the car was delivered. When it is necessary to add oil during this period, use nothing heavier than 10-W oil in winter or 20-W in summer. Change the oil at the end of 1000 miles.

> NOTE: "Break-in" oils or compounds are entirely unnecessary. They should not be used under any circumstances unless the supplier can furnish satisfactory proof that the compound contains no harmful ingredients.

After the first 1000 miles the crankcase oil should be selected to give the best performance under your individual climatic and driving conditions.

During cold weather an oil should be used that will permit easy starting at the lowest atmospheric temperature that is likely to be encountered.

The same considerations that guide the car owner in determining the strength of the anti-freeze solution for protection throughout the winter must guide him in selecting engine oil for winter use. At the approach of freezing weather

the owner must estimate the lowest atmospheric temperature that he expects to encounter throughout the winter period. He must then select an anti-freeze solution sufficiently concentrated to prevent freezing at this lowest anticipated temperature.

When the engine crankcase is being refilled, the engine oil should be selected, not on the basis of the atmospheric temperature existing at the time of the change, but on the anticipated minimum temperature for the entire period during which the oil is to be used. Unless the selection is made on this basis, difficulty in starting will be experienced at each sudden drop in temperature.

The viscosity grades of engine oil for use in your LaSalle car at the various cold weather temperatures are given in the following chart:

If you anticipate that the minimum atmospheric temperature will be:	Use the grade indicated:
Not lower than 32°F. above zero.	20-W or SAE-20
As low as 10°F. above zero.	20-W
As low as 10°F. below zero.	10-W
Below 10°F. below zero.	10-W plus 10% kerosene

NOTE: 10-W oil plus 10% kerosene is recommended only for those territories where the temperature falls below 10°F. below zero for long periods.

During summer weather the use of 20-W or SAE 20 engine oil will permit better all-around performance of the engine than will the heavy body oils. SAE 30 oil may be used if it is expected that the average prevailing daylight temperature will be 90°F. or above, or if the car is regularly driven at high speeds.

SAE Viscosity Numbers

The viscosity of a lubricant is simply a measure of its body or fluidity. The SAE viscosity numbers mentioned in this

section constitute a classification of lubricants in terms of fluidity, but without reference to any other properties. The oils with the lower numbers are lighter and flow more readily than do the oils with the higher numbers.

The refiners or marketers supplying the oil are responsible for the quality of the product. Their reputation is the car owner's best assurance of quality.

The SAE viscosity numbers have been adopted by practically all oil companies and no difficulty should be experienced in obtaining the correct grades of lubricant.

Maintaining Oil Level

Check the oil level every time gasoline is purchased and add oil as necessary. The float type oil gauge is marked "F" (full), "½", and "E" (empty). Add oil whenever the level is below "F," but add only enough to bring the level up to "F." Always be sure to have the right amount before starting on a long drive.

Changing Crankcase Oil

Oils have been improved greatly, driving conditions have changed, and improvements in engines have lengthened considerably the life of good lubricating oils. It is, however, necessary to change the crankcase oil whenever it becomes contaminated with harmful foreign materials, to assure continuation of best performance low maintenance cost and long engine life.

VISCOSITY NUMBER	VISCOSITY (SAYBOLT UNIVERSAL) 0°F. MIN.	0°F. MAX.	130°F. MIN.	130°F. MAX.	210°F MIN.	210°F MAX.
10-W (*)	5,000	10,000	—	—	—	—
20-W (**)	10,000	40,000	—	—	—	—
S.A.E.20	—	—	120	185	—	—
S.A.E.30	—	—	185	255	—	—

*SUB-ZERO POUR POINT **ZERO POUR POINT

Under normal driving conditions, draining the crankcase and replacing with fresh oil every 2000 to 3000 miles is recommended. Under adverse driving conditions, it may become necessary to drain the crankcase oil more frequently.

Short runs in cold weather do not permit thorough warming up of the engine, and water may accumulate in the crankcase from condensation of moisture produced by burning fuel. Water in the crankcase may freeze and interfere with proper oil circulation. It also promotes rusting and may cause clogging of oil screens and passages. Under normal driving conditions this water is removed by the crankcase ventilator, but if water accumulates on short runs it should be removed by draining crankcase as frequently as may be required.

During winter months, light or low viscosity oils are required to obtain easy starting. The crankcase should, therefore, be drained at the beginning of winter and refilled with oil of the proper viscosity for winter use. After continuous hard driving, these light oils may thicken and cause hard starting. Thus, although a drainage period of 2000 miles may be desirable, for cars subjected to high speed driving, under very severe conditions more frequent draining may be required to prevent hard starting due to thickened oil.

It is advisable to drain the crankcase only after the engine has reached normal operating temperature. The benefit of draining is, to a large extent, lost if crankcase is drained when engine is cold, as some suspended foreign matter will cling to the sides of the oil pan and will not drain out readily with slower moving cold oil.

Whenever the crankcase oil is changed, the copper gauze in the engine oil filler cap, which is also the air intake for the crankcase ventilating system, should be cleaned in gasoling and dipped in engine oil.

Chassis Lubrication

The complete lubrication schedule is given on the next page. If faithfully followed, the schedule will provide correct lubrication for each wearing surface of the car. The items listed are illustrated in the "Lubrication Chart" supplied with this manual, which will assist the operator in locating the various lubricating points.

The schedule calls for a lubrication operation each one thousand miles. After 1000 miles of driving, lubrication No 1 is due, at 2000 miles No. 2 is due, etc. At 13,000 miles the schedule begins again with No. 1. The schedule is expressed in mileage intervals because lubrication is required after 1000 miles of driving. ***If the mileage each month is less than 1000, the car should be lubricated once each month, regardless of mileage.***

Lubricants

The ***rear axle*** of your car is equipped with a hypoid gear and pinion, and it must be lubricated all year round with ***SAE-90 Hypoid Lubricant.***

The lubricant level should be inspected every 1000 miles and Hypoid Lubricant added if required. The axle should be drained, flushed out, and refilled with fresh Hypoid Lubricant every 6,000 miles, regardless of season.

NOTE: SAE 80 Hypoid Lubricant should be used in localities where the temperature drops below 10° below zero for long periods.

Lubrication Schedule

	Lubrication Number											
	1	2	3	4	5	6	7	8	9	10	11	12
Every 1000 miles												
Oil starter and generator oil cups.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Oil hand brake connections.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Oil clutch release mechanism.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Oil body hardware.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Lubricate distributors.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Lubricate chassis connections.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Add water to battery.†	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Add liquid to radiator.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Check tire inflation.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Inspect rear axle lubricant level.	✓	✓	✓	✓	✓	*	✓	✓	✓	✓	✓	*
Every 2000 miles												
Drain and replace engine oil.	‡	✓		✓		✓		✓		✓		✓
Clean filter in oil filler cap.		✓		✓		✓		✓		✓		✓
Clean carburetor air cleaners		✓		✓		✓		✓		✓		✓
Every 3000 miles												
Add lubricant to transmission.			✓			*			✓			*
Add lubricant to steering gear.			✓			✓			✓			✓
Oil distributor cam wicks.			✓			✓			✓			✓
Every 6000 miles												
Clean, repack and adjust front wheel bearings.						✓						✓
Drain, flush and refill transmission.						✓						✓
Drain, flush and refill rear axle.						✓						✓
Oil speedometer drive cable.						✓						✓

See Lubrication Chart for Complete Lubrication Instructions

†Inspect battery every 2 weeks in Summer.
*Refill transmission and axle with proper grade of lubricant every 6000 miles.
‡The oil originally in the engine should be changed within the first 1,000 miles.

The ***transmission*** is to be lubricated all year round with SAE 90 or SAE 90 EP gear oil. The lubricant level should be inspected every 3,000 miles and lubricant added as required. Every 6,000 miles, the transmission case should be drained, flushed and refilled with a fresh charge of SAE 90 or SAE 90 EP gear oil.

Other Units—The steering gear, wheel bearings, and grease gun connections each require a specific type of lubricant. Only operators familiar with these requirements and having the right materials should be permitted to lubricate the car.

Lubricant Capacities:

Engine crankcase..... 11 qts.
Transmission..... 2½ pts.
Rear Axle..... 6 pts.
Cooling System..... 30 qts.

Other Operations:

In addition to the operations included in the lubrication schedule, there are several other items of maintenance regularly required which are listed here for your convenience:

Shock absorbers...Check fluid level every 6,000 miles.
Brakes.....Check fluid level every 6,000 miles.
Cooling System...Flush twice a year—Spring and Fall.
Gasoline Lines and Strainers.....Clean out twice a year—Spring and Fall.
Engine Oil Pan....Remove and clean once a year.
Tires.....Interchange, left to right and front to rear, every 4,000 miles.

Maintenance Suggestions

Body

The body of your car deserves the same care and attention as the chassis. Care of the body consists simply of regular lubrication of those body parts requiring it, and regular cleaning of the finish and the upholstery.

Care of Finish—The lacquer finish of the car can be kept new and lustrous with only a thorough wiping with a soft dry cloth every few days. With this care, washing will be required only when considerable mud or dust has accumulated.

Washing the car can be accomplished simply and easily with plenty of clean, cold water, a soft wool sponge, and a clean chamois. Soap and hot water are not only unnecessary but undesirable. Never wash the car in the direct rays of the hot sun and never wash it when the sheet metal surfaces are hot from a hard run.

In the winter time the car should be washed frequently if it is driven over roads or streets where salt or calcium chloride are used to melt snow or ice. These road chemicals have a severe effect on the finish of lacquer or plated parts if allowed to remain on them for any length of time.

If the car finish appears dull after washing, the original brightness and lustre may be restored by the use of a good lacquer polish. It is important to use only a dependable lacquer polish as some polishes contain excessive abrasive material and other harmful ingredients.

Care of Upholstery—Regular monthly cleaning of the car's interior with a vacuum cleaner and a whisk broom will keep the upholstery in the best of condition and will prevent excessive wear.

Spots on the upholstery can usually be cleaned with any good dry cleaner used sparingly. We recommend Cadillac Fabric Cleaner.

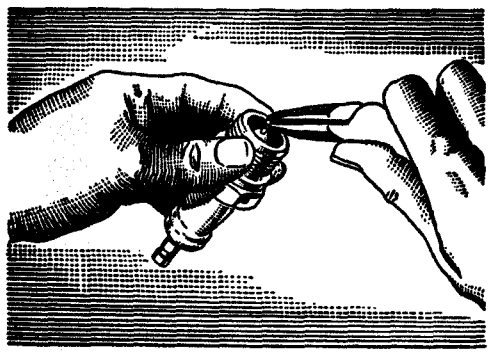
Engine

The Cadillac V-16 engine has a cylinder bore of 3¼" and a piston stroke of 3¼". The taxable horsepower is 67.6 although the engine actually develops 185 horsepower at 3600 R. P. M.

The amount of attention required by the engine is surprisingly small, considering the number of working parts and wearing surfaces. All that is required is adequate lubrication with the correct grade of engine oil (see page 37), and occassional adjustments as explained in the following paragraphs.

Ignition System—The ignition system must supply to each cylinder in turn at exactly the right time a spark hot enough to ignite the highly compressed gasoline mixture in the cylinders. And, at the ordinary cruising speed of 60 miles per hour, the system must supply approximately 20,000 of these sparks ***per minute***. Is it any wonder that the ignition contact points and spark plugs require occasional attention?

The need for attention to the ignition system is usually indicated by sluggish engine performance, due to lack of a hot enough spark. Many experienced owners do not wait for this symptom, however, but have the ignition system checked periodically, ***about twice a year or oftener.*** The ignition system should always be checked at the beginning of cold weather in the fall, to assure easy starting during the winter months.



The work required by the ignition system consists of the following:

Cleaning the spark plugs and setting the gap to .025-.030 inch. Install

new plugs if the old plugs are badly worn. A.C. Spark Plug Model 45 is recommended for Cadillac V-16 cars.

Cleaning the timer contact points in the distributor and setting to a gap of .012-.018 inch. Replace contact points if they are badly worn.

Retiming the ignition to the timing marks on the harmonic balancer at the front of the engine.

Carbon and Detonation—Most automobile owners have been taught that a detonation or "ping" in the engine is an indication of an over-advanced spark or of carbon in the engine, and probably the latter. While this is true, the following supplementary information must be included when considering "ping" in any high compression engine.

On cars with high compression engines, slight detonation occuring on rapid acceleration at ***low*** speeds and disappearing at about 15 miles per hour, is normal and indicates that the engine is performing at top efficiency. Detonation at higher speeds can be eliminated by checking and correcting the following:

Grade of gasoline used—The Cadillac V-16 engine is designed for use with premium (ethylized) fuels. Gasoline of a lower rating should not be used.

Over-lean-mixture—This may be due to an incorrect carburetor adjustment or to an obstruction in the fuel feed.

Spark plugs—One or more faulty spark plugs will cause pre-ignition in their respective cylinders. Replace these with A. C. model 45 spark plugs.

Accumulation of Carbon—Accumulated carbon can be removed by scraping after taking off the cylinder head. Removal of carbon by burning is ***not recommended.***

Carburetor—The only adjustment required by the carburetors is the idling adjustment.

The idling speed should be set with the throttle stop screws to the equivalent of 6 miles per hour. The idle needle valves should then be adjusted until the engine runs smoothly. These adjustments must be made when the engine is hot.

Accurate synchronization of the two carburetors is essential to good engine performance. This can be done most satisfactorily at an Authorized Service Station.

Air Cleaner—Your Cadillac V-16 car is fitted with air cleaners of the "oil bath type," which operate very efficiently in removing dust from the air drawn into the engine. ***As this type of cleaner accumulates considerable dust and dirt, it requires regular cleaning every 2,000 miles, or oftener if extreme conditions are encountered.***

The cleaners are cleaned and re-oiled in the following manner:

Remove the gauze units and wash thoroughly in gasoline, taking particular care to wash all the accumulated dirt and dust out of the wire mesh.

Dry all the units thoroughly, either with compressed air or an adequate drying period.

Pour one pint of S.A.E. 50 engine oil (S.A.E. 40 in winter) in each reservoir and assemble the wire mesh and cap.

NOTE: No oil should be placed on the wire mesh.

Gasoline Filter—Gasoline filters are provided at the fuel pumps on the front of the engine. Any accumulation of water or sediment should be cleaned out when it can be seen in the glass bowls. Remove the bowls by unscrewing the thumb nut and swinging the yoke to one side. If the screen strainer sticks, remove it by pulling straight up.

Any dirt on the strainer should be washed off with gasoline, and the bowl should be wiped clean. Then reinstall screen and bowl, making sure the bowl seats properly against the cork gasket and tighten.

Other Service Operations—Major service operations on the engine, such as valve grinding, replacement of bearings or reconditioning of cylinders, should be performed only by experienced workmen having the necessary instructions and equipment.

Cooling System

The attention required by the cooling system consists of keeping it filled to the proper level with the proper fluid, and keeping all connections tight to insure a leak-proof system.

The capacity of the cooling system is 30 quarts when filled to the proper level, which is one inch below the top of the upper tank.

Anti-Rust Treatment—When the car is delivered to the owner, a small amount of chemical inhibitor is added to the fluid in the cooling system, in order to reduce foaming and retard the formation of rust and scale, thus helping to keep the system clean. It is not necessary to add more inhibitor each time that water or anti-freeze is added, but whenever the cooling system is drained and refilled, a suitable inhibitor should be added. Your Authorized Service Station can advise you regarding the proper material to use.

Cleaning Cooling System—It is recommended that the cooling system be thoroughly cleaned and flushed twice a year, or every 6,000 miles, preferably by reverse-flow flushing. In any event, the cooling system should be cleaned and thoroughly tightened before anti-freeze is added at the beginning of cold weather.

The following method of cleaning the cooling system can be used if facilities for reverse-flow flushing are not convenient.

Run the engine until it is warm; then stop the engine and open the three drain valves for the cooling system. One drain valve is located at the bottom of each cylinder group and one at the lower left hand corner of the radiator. All three valves must be open to drain the engine completely. After the liquid has drained off, refill the cooling system with ***hot*** water, run the engine for a few minutes and again drain the system. Repeat this operation until the water is clean when it is drained.

In cases where the accumulation of rust and scale is so great that this method does not clean the system adequately, the system should be flushed out, using a solution of water containing one pint of sal-soda (washing soda) and one quart of kerosene, and running the engine for half an hour. After this operation, the system must again be thoroughly flushed in order to clean out all traces of this cleaning solution. Do not allow any of the solution to reach the car finish.

Anti-Freeze

Anti-freeze solutions that can be safely used are of two types: The volatile types such as denatured alcohol and methanol or the non-volatile types such as distilled glycerine and ethylene glycol (Prestone).

If you prefer to use alcohol or methanol solutions, it is important that the solution be tested at frequent intervals, and that sufficient anti-freeze be added to replace any lost by evaporation; otherwise there is a danger of damage by freezing. When using these solutions, it is also important to avoid spilling any on the car finish, or if any is spilled, to flush off immediately with a large quantity of water.

Distilled glycerine and ethylene glycol are more expensive in first cost but, as they are not lost by evaporation, only water needs to be added. Solution lost through leaking or foaming must, of course, be replaced and on this account it is especially important to make sure that the system is leak-proof before adding this type of anti-freeze.

Glycerine and ethylene glycol should be used in accordance with instructions and in the proportions recommended by the anti-freeze manufacturer. Ordinarily they should not be mixed with other solutions. No additional rust inhibitor should be added when the anti-freeze contains an inhibitor. Many branded alcohol anti-freezes and most non-volatile anti-freezes contain rust inhibitors.

Whenever anti-freeze is to be installed, check over the entire cooling system. Replace any worn hoses and tighten all hose connections. Inspect water pumps, fan belt, and radiator shutters and thermostat for proper operation. Clean cooling system thoroughly to remove all rust and scale.

When glycerine or ethylene glycol are to be installed, one special precaution must be taken. The cylinder heads must be tightened thoroughly to prevent any possibility of the cooling liquid getting into the engine crankcase. If necessary, ins tall new cylinder head gaskets and tighten thoroughly.

Salt solutions, such as calcium chloride or magnesium chloride, sodium silicate, kerosene, honey, glucose and sugar solutions are not satisfactory for use in automobile radiators.

Use of Hydrometer—In using a hydrometer to determine the temperature at which a solution will freeze, the test must be made at the temperature at which the hydrometer is calibrated. If the solution is warmer or colder, it must be brought to this temperature or errors as large as 30 degrees F. may result.

Alcohol and methanol solutions have, for all practical purposes, the same specific gravity and they may be tested with the same hydrometer and mixed in the same solution. When testing alcohol or methanol solutions, allowances must be made for the effect of the inhibitor on the hydrometer reading. With the inhibitor in the cooling system, the actual freezing temperature is ***five degrees higher*** than indicated by the hydrometer.

Storing the Car

If the car is to be stored for any length of time it is important that a few precautions be taken to protect it from deterioration. Blocking up the car to take the weight off of the tires and placing a cover over the entire body will protect the tires and finish. The engine and the storage battery, however, require special attention.

The engine should be run until it is thoroughly warm. The filter bowls should then be removed (see page 47) and the engine run until all of the gasoline is drawn out of the pumps and the carburetors. The gasoline tank should be drained.

Oil should be injected into the cylinders while the engine is still warm. This may be done by pouring two or three tablespoonsful of engine oil into the spark plug holes. Cranking the engine a few times after that is done will distribute the oil evenly over the pistons and cylinder walls. The cooling system should then be drained.

The battery should be fully charged and the solution should be at the proper level. The battery should be disconnected to avoid discharge through insulation leaks. If possible, arrangements should be made to have the battery charged from an outside source every two months during the storage period.

Wheels and Tires

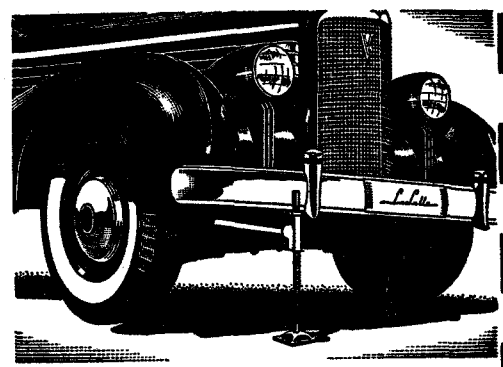
Jack Pads—To facilitate raising the car when a tire is flat, the car is fitted with special pads for the jack in accessible positions near the front and rear wheels as shown in the drawings at the bottom of the page.



Changing Wheels—Remove the wheel disc by prying off with the special right angle tool. In using the tool, rock the handle sideways, as shown in the drawing.

Remove the nuts from the mounting studs around the hub. The wheel must then be lifted off of the studs and swung so that the front side is brought forward, after which the wheel can be rolled out from under the fender toward the rear.

When reinstalling a wheel, roll it in under the fender from the rear and lift it up to the hub, hanging it on the mounting studs and then attaching the mounting nuts. Do not tighten the nuts in rotation; after tightening one nut tighten the one opposite.



Tools

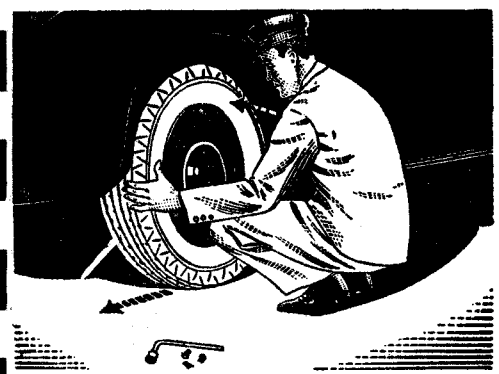
The tool kit supplied with the car includes tire changing equipment and a few general use tools, as follows:

Hammer	3 Open End Wrenches
Screw Driver	Tool Bag
Large Screw Driver	Jack and Handle
Pliers	Wheel Mounting Wrench
Adjustable Wrench	Wheel Disc Pry
Spark Plug Wrench	

The tools are stowed in the rear deck or trunk compartment next to the spare tire.

Tires—Tire inflation pressures and procedure are given in detail on page 9. The correct tire size is:

Series 38-90.....6 ply 7.50 x 16



The life of all four tires may be increased considerably by interchanging them at regular intervals of 4,000 miles. The right front tire should be interchanged with the left rear and the left front with the right rear. This will subject all tires to equal amounts of all types of wear, and thus increase their useful life.

Electrical

Storage Battery—The Storage Battery is carried in a compartment underneath the right front seat.

The battery is filled with an acid solution from which the water slowly evaporates, making it necessary for fresh distilled water to be added to each of the three cells at regular intervals to bring the level up to the bottom of the filling tubes. ***Distilled water should be added at least every 1000 miles and, in warm weather, every 500 miles or at least every two weeks.*** Hydrant water or water that has been in contact with metallic surfaces is not satisfactory.

After adding water to the storage battery in freezing weather, the car should immediately be run far enough to mix the water with the acid solution thoroughly. If the car is parked immediately after water is added, the water is likely to stay on top of the acid solution and may freeze, thus causing extensive damage to the battery.

CAUTION: Whenever disconnecting any wires in the generator circuit or in the harness opening at the regulator

box, the battery must be disconnected first of all. Otherwise, there is a possibility of the loose connections being shorted or grounded in a way that will reverse the generator polarity or otherwise damage the charging circuit.

Lamp Bulbs—In replacing lamp bulbs in any of the lights on the car, the same candle power bulb should be used for replacement as was originally installed. It is a good plan to carry a spare set of these lamp bulbs in the car at all times.

The lamp bulbs used in the car are as follows:

Location	Voltage	Candle Power	Mazda No.
Headlamps	6–8	32–32	2330-L
Rear Lamps	6–8	21–3	1154
Dome Light	6–8	15	87
License Lamp Quarter Lights Lock Lamp	6–8	3	63
Parking Lamps (In Headlamps) Instrument Lamps Clock Lamp Indicator Bulbs	6–8	1	51

License Data

Engine Number.....5270001 and up

The engine number, which is also the serial number, is stamped on the upper rear corner of the left hand cylinder block. It contains figures only, and no letters. It can be read upon lifting the left side of the hood.

The engine number is to be used in license and insurance applications, and in general reference to the car.

Type of Engine.....V-16

Bore and Stroke.....3¼ x 3¼ in.

Piston Displacement.....431 cu. in.

Taxable Horsepower.....67.6

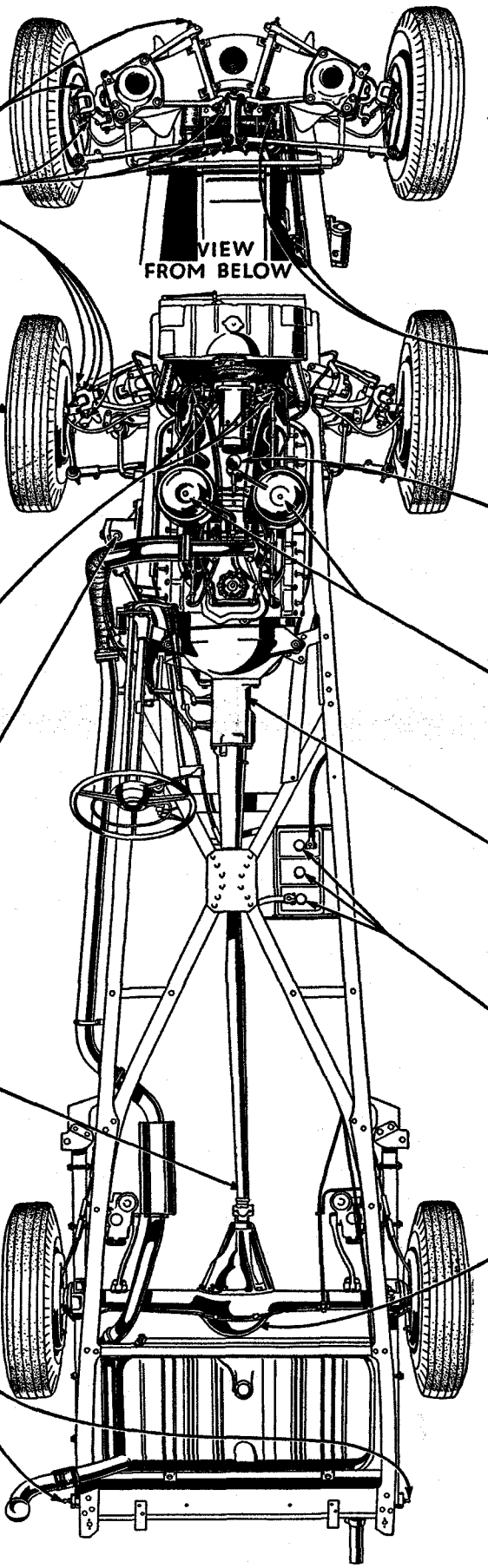
Wheelbase.....141 in.

Weight: Consult the distributor or dealer who sold you the car, or the Motor Vehicle Commissioner of your State. Weights of all Cadillac body styles are regularly supplied to these authorities.

Edition 38-91
1.5M-11-37

LUBRICATION CHART

Check engine oil level every time gasoline is purchased



Front Wheel Suspension

10 points each side

Apply chassis lubricant to connections with grease gun at points shown.

Every 1000 miles

Front Wheel Bearings

Each front wheel

Remove bearings, clean, repack with wheel bearing lubricant and readjust.

Every 6000 miles

Oil Filter

At left of engine

Disassemble filter and replace cartridge.

Every 4000 miles

Timer-Distributors

Turn down grease cups and refill with water pump lubricant. Apply vaseline to cams and a drop of engine oil to cam wicks.

Every 1000 miles

Steering Gear

Add steering gear lubricant to bring level up to filler.

Every 1000 miles

Universal Joint Splines

Apply chassis lubricant to connection with grease gun.

Every 1000 miles

Rear Spring Shackles

1 each side

Apply chassis lubricant to connections with grease gun.

Every 1000 miles

Body Hardware

All Series

Apply a few drops of light oil to door and trunk hinges. Clean all door striker plates and wedges and apply a small amount of vaseline.

Every 1000 miles

"Oil Can" Lubrication

Apply a few drops of engine oil to the connections for the hand brake, the clutch release mechanism, accelerator rocker shafts, and the hood hinges.

Every 1000 miles

Steering Connecting Rod

1 each end

Apply chassis lubricant to connections with grease gun.

Every 1000 miles

Engine Oil Filler

Check oil level every 100 to 150 miles and add oil as required.

Drain crankcase and refill with oil of correct grade.

Every 2000 miles

Air Cleaners

Remove air cleaner filtering units, drain and refill with one pint of SAE 50 engine oil and reinstall.

Every 2000 miles

Transmission

Add transmission lubricant to bring level up to filler hole.

Every 1000 miles

Drain, flush, and refill with fresh lubricant.

Every 6000 miles

Storage Battery

Add distilled water to bring level up to bottom of filler tubes.

Every 1000 miles

In warm weather check level every two weeks.

Rear Axle

Add Hypoid lubricant to bring level up to filler hole.

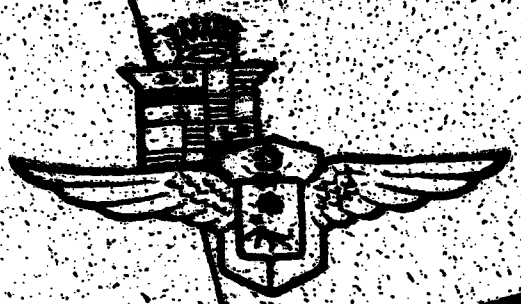
Every 1000 miles

Drain, flush, and refill with Hypoid lubricant.

Every 6000 miles

CAUTION: Open garage doors before starting engine

39-91
1M-10-38
Printed in U. S. A.



Cadillac La Salle

DATA BOOK

CADILLAC-
LA SALLE
DATA BOOK

SEPTEMBER 10, 1937



Sales Promotion Department

CADILLAC MOTOR CAR DIVISION

All information contained in this Data Book has been carefully checked with sources believed reliable, but is not guaranteed. The Cadillac Motor Car Division reserves the right to change any of this information or specifications without incurring any obligations.

CADILLAC-
LA SALLE
DATA BOOK

SEPTEMBER 10, 1937



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THE NEW CADILLACS

The Greatest Cars Ever to Bear

Cadillac presents for 1938 the greatest fine car program in its history—five entirely new cars, each new and more practical in its styling and each new and advanced in its engineering. Through simplification of lines and additional body types, each of the five lines becomes an outstanding leader in its defined price field, thus permitting more concentrated sales effort on the one Cadillac or LaSalle which best fulfills customer requirements. Each of these leaders is an unexcelled value. Each appeals to its prospective buyers from every standpoint by which fine cars are judged.

The LaSalle V-8 of last year won thirty-five thousand friends. The new LaSalle for 1938, fresher and more invigorating in its styling, richer in its interior appointments, refined in both V-8 engine and chassis, promises to lengthen this long list of friendships many fold. This Cadillac-built fine car recognizes no equal for extra value.

A new Cadillac Sixty has been designed especially for those desiring Cadillac ownership at a medium price. Embracing new and distinctive styling, unexcelled eight cylinder smoothness and performance, this fine car is available in four body types.

Cadillac also presents the first truly modern and practical motor car for 1938—the Cadillac Sixty Special. The result of many years of diligent research, experimentation, and engineering, the Cadillac Sixty Special provides those imminently practical features of safety and comfort which result from extensive outward vision, ease of entrance and interior roominess. The Cadillac Sixty Special promises to make new inroads upon the market composed of people desiring one of the most practical and beautiful forms of land transportation.

REVISED 12-15-37

AND LA SALLES FOR 1938

the Greatest Fine Car Name

The new Cadillac V-8, or Series 65, carries on the Cadillac tradition of large, fine cars. Luxury and comfort have been particularly stressed in designing the new Cadillac V-8. It is roomier. It has even greater performance. Two new body types have been added, thus making available a wider selection of traditionally fine Cadillacs below the price of the luxurious Fleetwoods.

The new Cadillac Fleetwoods for 1938 have more generous interior dimensions and more luxurious equipment than has ever before been provided. The new Cadillac Fleetwood reflects so much visible luxury over all other fine cars that those who desire quality in transportation will really want Cadillac Fleetwood this year. Cadillac Fleetwood now embraces both of the markets covered by the previous Series 70 and 75. Cadillac Fleetwood is outstanding among fine cars.

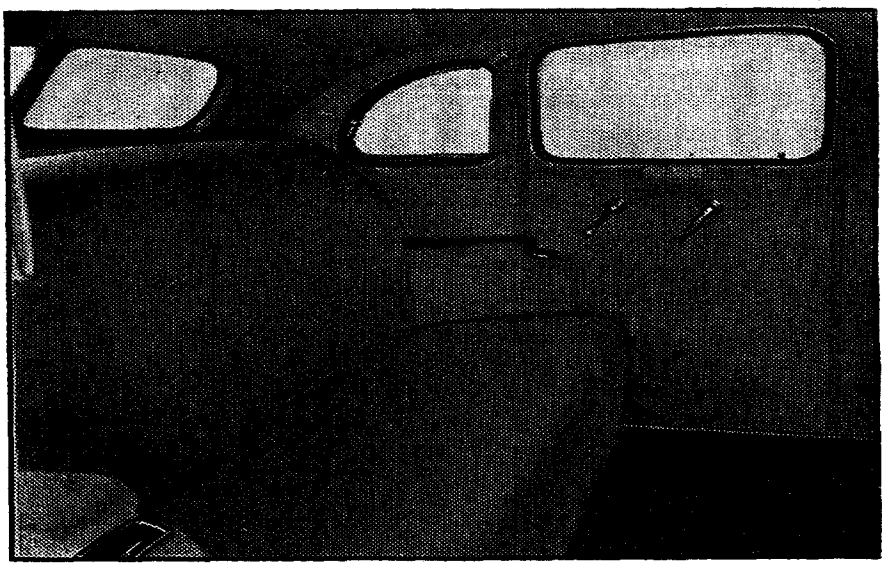
Cadillac has attained a New High Standard of the World with the introduction of a revolutionary new sixteen cylinder motor car. The new 135 degree sixteen cylinder engine is unquestionably the greatest power plant ever created for a motor car. This engine is complemented by a chassis of equally advanced design and by coachwork which surpasses every Fleetwood tradition for luxury and comfort. The new Cadillac Sixteen, the World's Finest and Most Luxurious Motor Car, supplants both the former V-12 and V-16. It obsoletes all twelve cylinder automobiles.

The new Cadillacs and La Salle for 1938 are offered in six chassis models, three engine sizes and thirty-nine body styles.

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1938 LA SALLE

Cadillac Designed



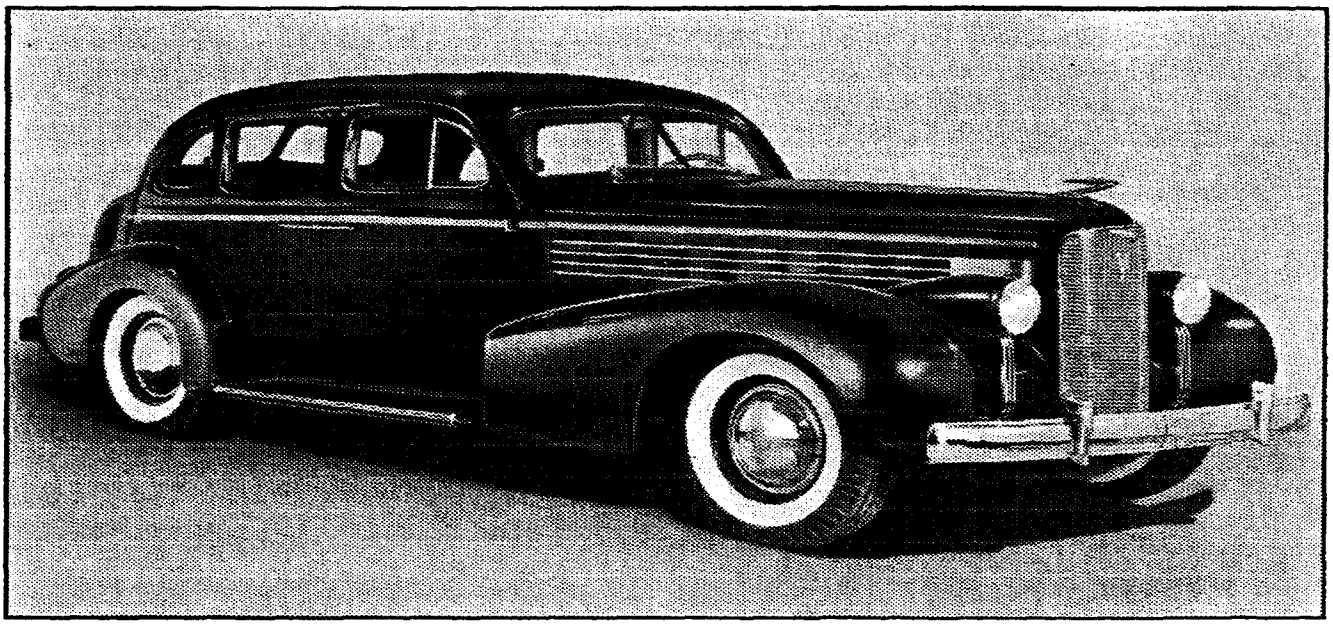
New fabrics and new trimming styles freshen interior appearance and provide an atmosphere of rare quality.

BODY:

Five Body Types
Unisteel Turret Top Construction
Fourteen Exterior Color Options
Four New Upholstery Options

CHASSIS:

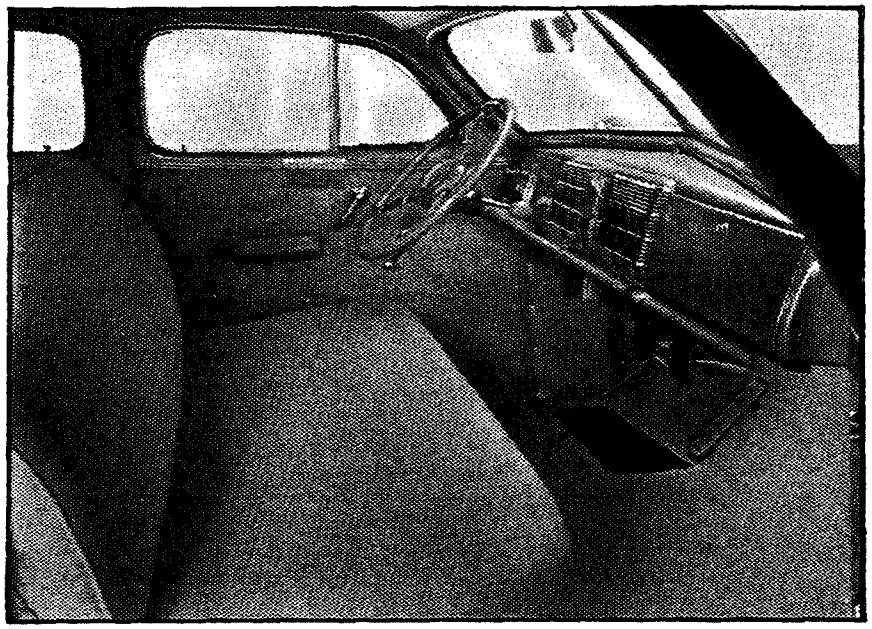
124 Inch Wheelbase
X-Type, I-Beam Frame
Knee Action
Center Point Steering



Lower overall appearance symbolizes LaSalle's greater power and sturdiness.

V-EIGHT

Cadillac Built



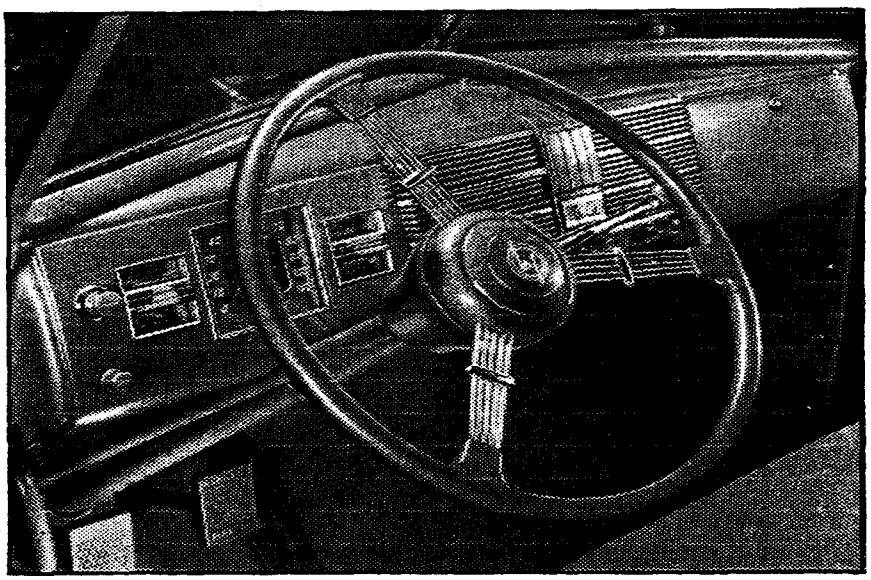
The front compartment floor is level and free from all obstructions. Three passenger comfort in front is now a reality.

CHASSIS (*Cont.*)

More Durable Transmission
Double Ride Stabilizers
End-to-End Type Shock Absorbers
Large Hydraulic Brakes
Waxed Rear Spring Liners
Precision Built Hypoid Rear Axle

ENGINE:

Cadillac Built 90° V-Type 8
322 Cubic Inch Displacement
125 Horsepower @ 3400 R.P.M.
Bore 3 3/8"; Stroke 4 1/2"
Improved Carburetion
Uniform Engine Cooling



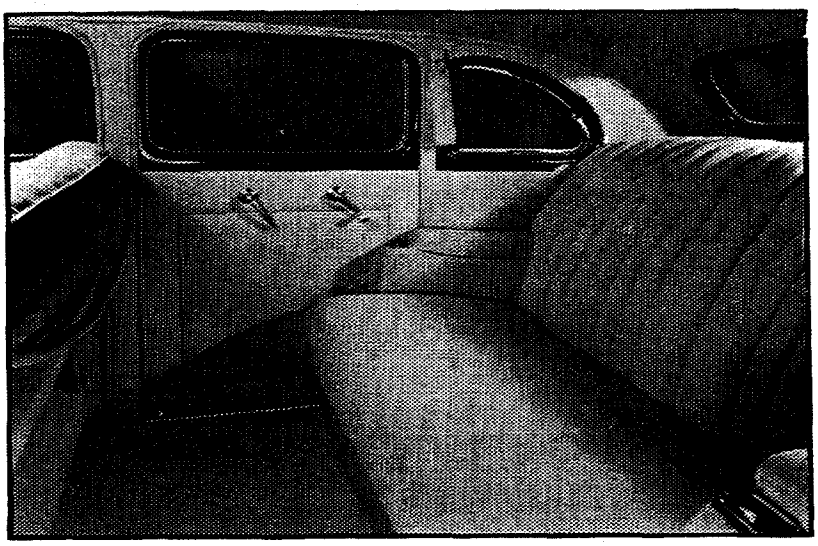
New Syncromatic Shift places the shifting lever on the steering column. All driving controls are at one's finger tips.

The new beautifully curved instrument panel has recessed knobs for safety and is clearly visible day or night.

REVISED 12-15-37

1938 CADILLAC SIXTY

America's Smoothest and Best Performing Eight Cylinder Motor Car



The rear compartment is roomy and is upholstered and trimmed in a distinctive style. Complete appointments include a center arm rest.

BODY:

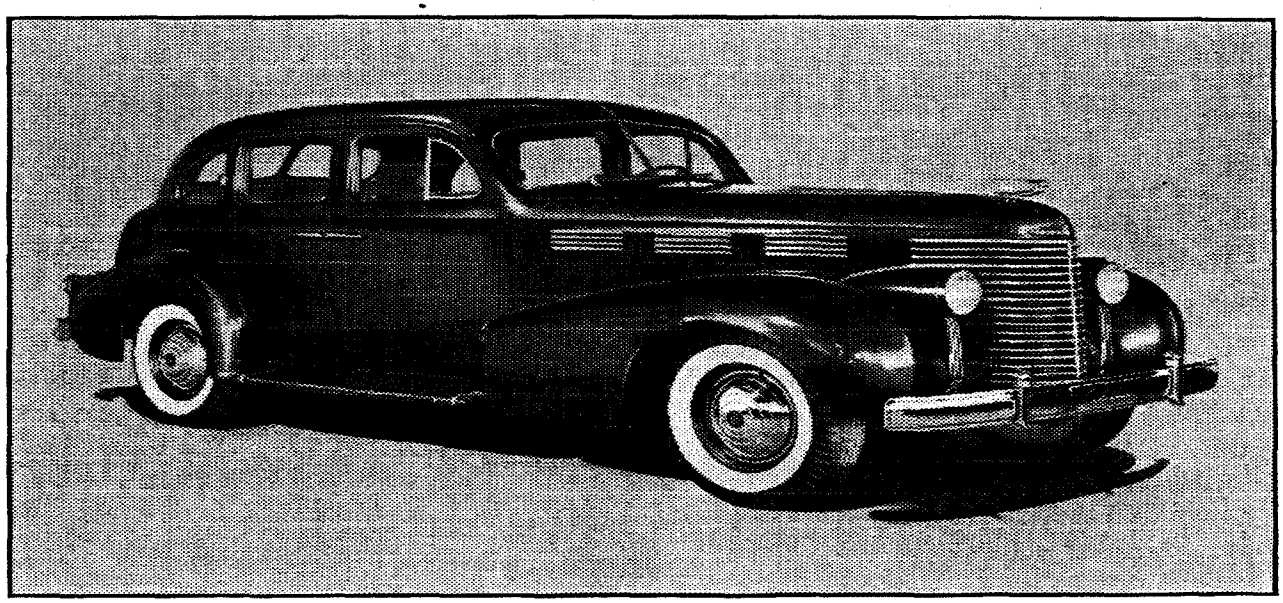
- Five Body Types
- Unisteel Construction
- Fourteen Exterior Color Options
- Upholstery Selections:
  - Six Cloths
  - Four Leathers

CHASSIS:

- 124 Inch Wheelbase
- Syncromatic Shift
- Ride Stabilizers front and rear

ENGINE:

- Cadillac-built 90° V-type 8
- 346 Cubic Inch Displacement



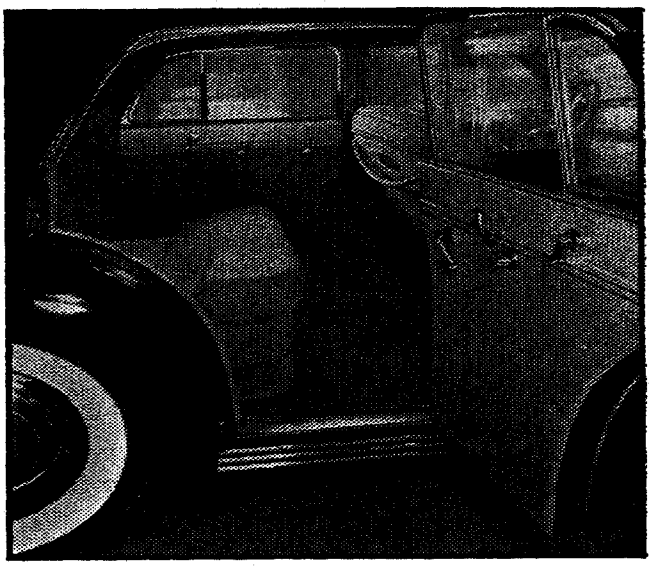
The new Cadillac Sixty will never be confused with other makes of cars. Its frontal grille is a distinctive masterpiece in design.

REVISED 12-15-37

THE NEW SIXTY SPECIAL

First to Combine Practical Design With Dynamic Styling

Doors of unusual height and width and absence of running boards permit passengers to enter or leave the car with the greatest of ease.



ENGINE (*Cont.*):

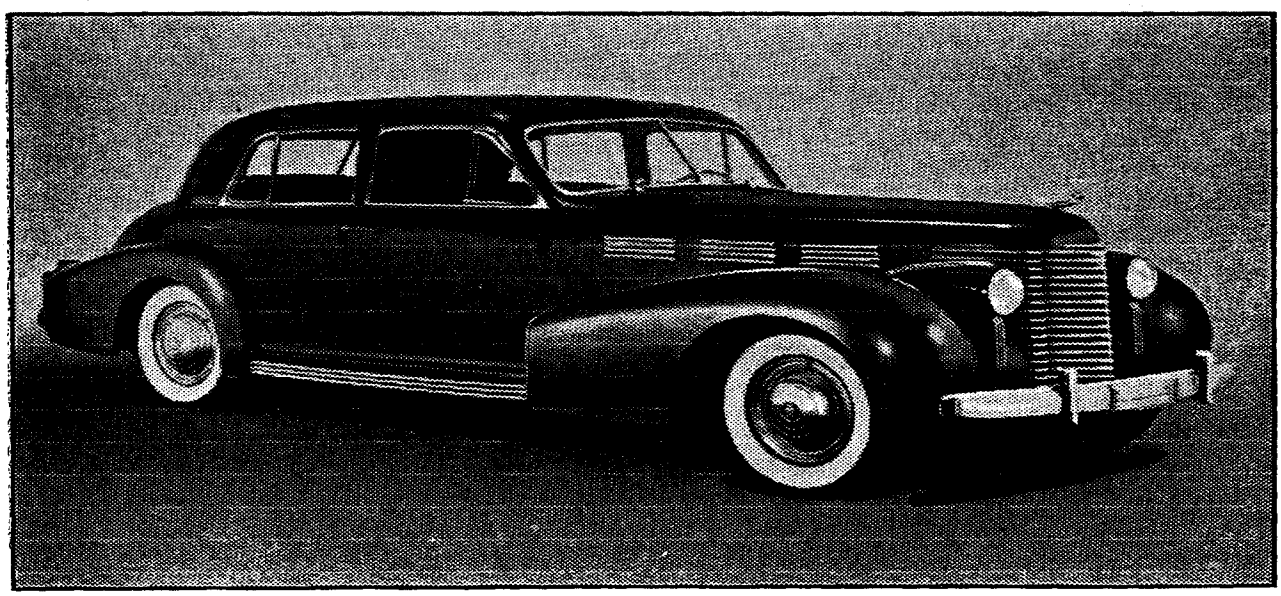
135 Horsepower @ 3400 R.P.M.
New Syncro-Flex Flywheel
Improved Carburetion

BODY:

Five Passenger Touring Sedan
Structurally All-Steel

CHASSIS:

127 Inch Wheelbase
Lower, More Rigid, Double-Drop Frame
New, More Durable Transmission
Waxed Rear Spring Liners

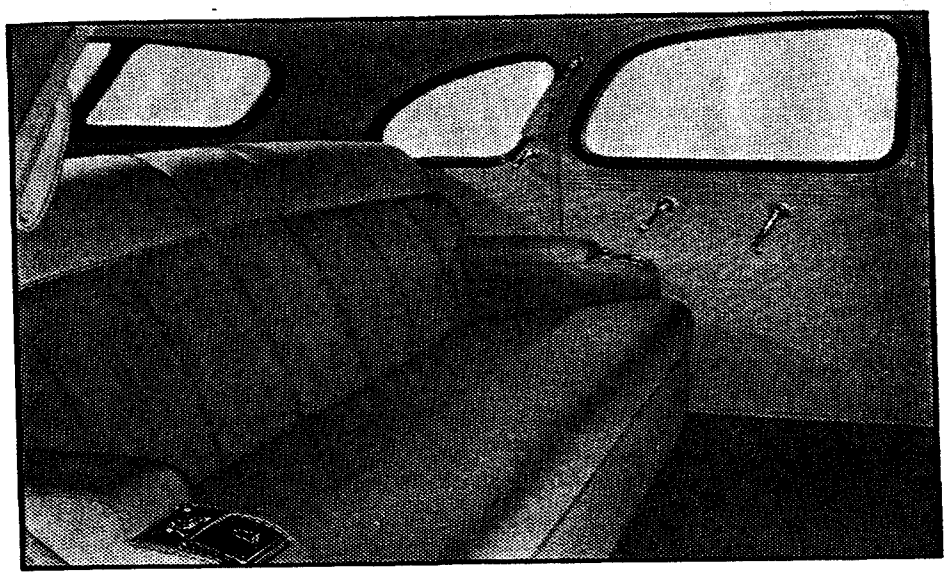


The correctly designed Sixty Special provides extensive vision and unusual roominess. It has strikingly low, fleet lines.

REVISED 12-15-37

CADILLAC CUSTOM

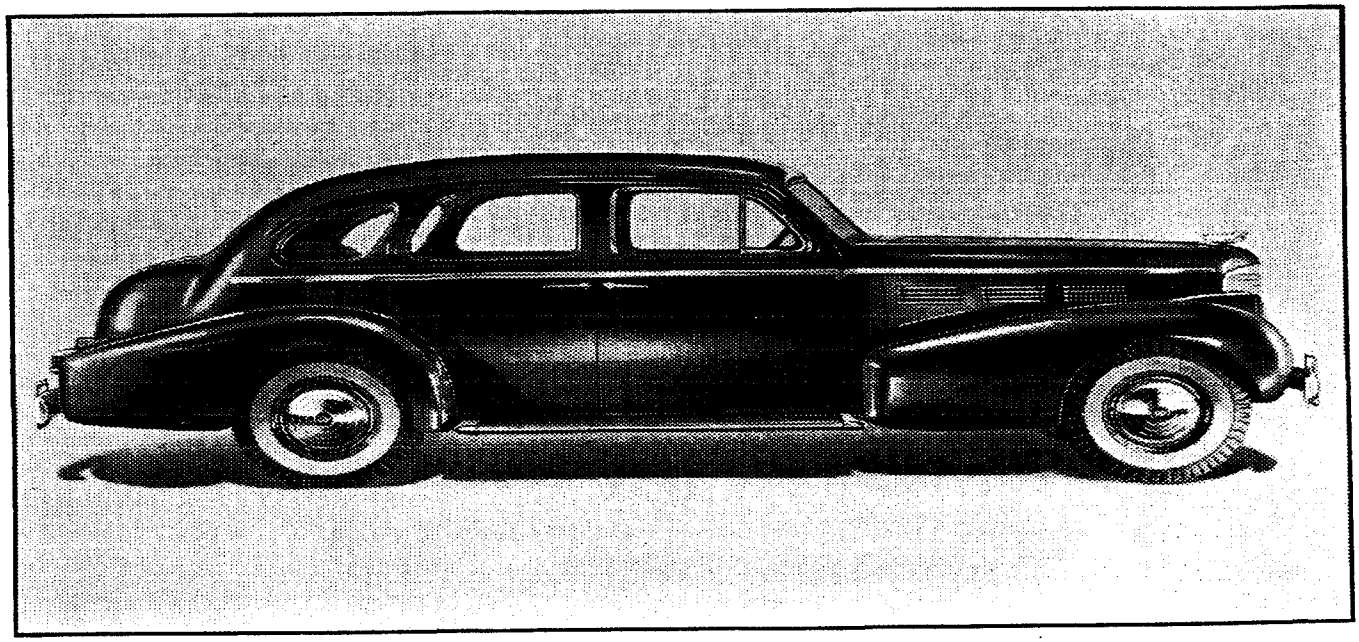
A Traditionally Large Fine Car



Both shoulder width and legroom have been increased for comfort. New trimming styles provide richer appearance. There is every appointment for comfort and convenience.

BODY:

Three Body Types
Steel Construction
Fourteen Exterior Color Options
Six Upholstery Selections



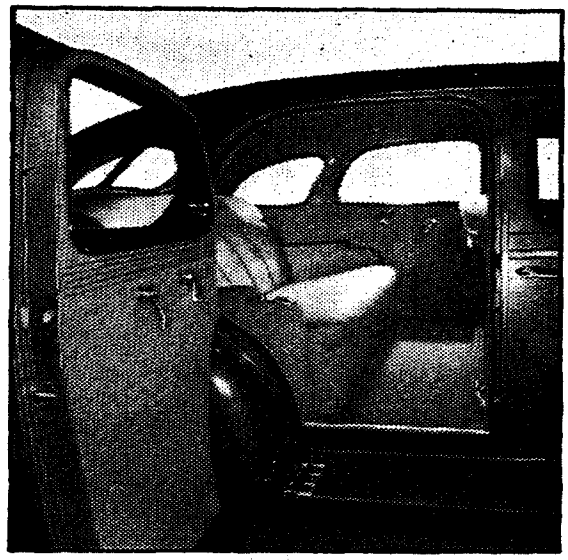
The new Cadillac V-8 presents a distinctively symmetrical modern appearance with its rear quarter pillar sloping at an opposed angle to the 39-degree V-windshield.

REVISED 12-15-37

V-EIGHT

Roomier and More Luxurious

Higher, wider doors, made possible by lower floors and longer wheelbase, permit extreme ease of entrance into the car.

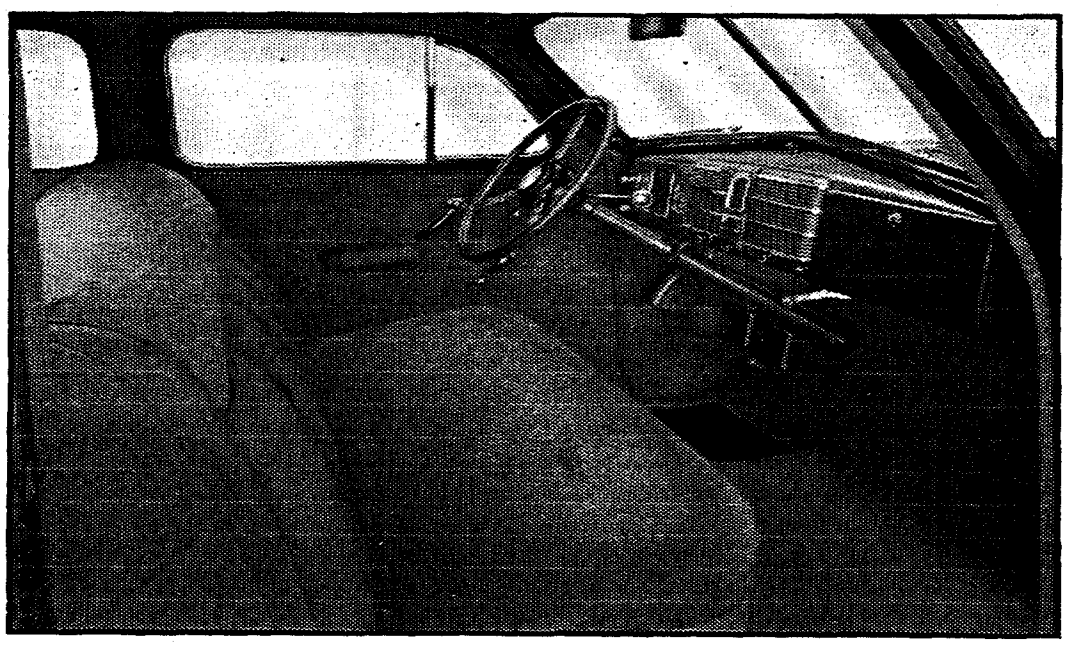


CHASSIS:

Longer 132 Inch Wheelbase
More Durable Transmission
Lower, More Rigid Frame
Improved Stabilizer Action
Waxed Rear Spring Liners
Improved Hydraulic Brakes
Precision Built Hypoid Rear Axle

ENGINE:

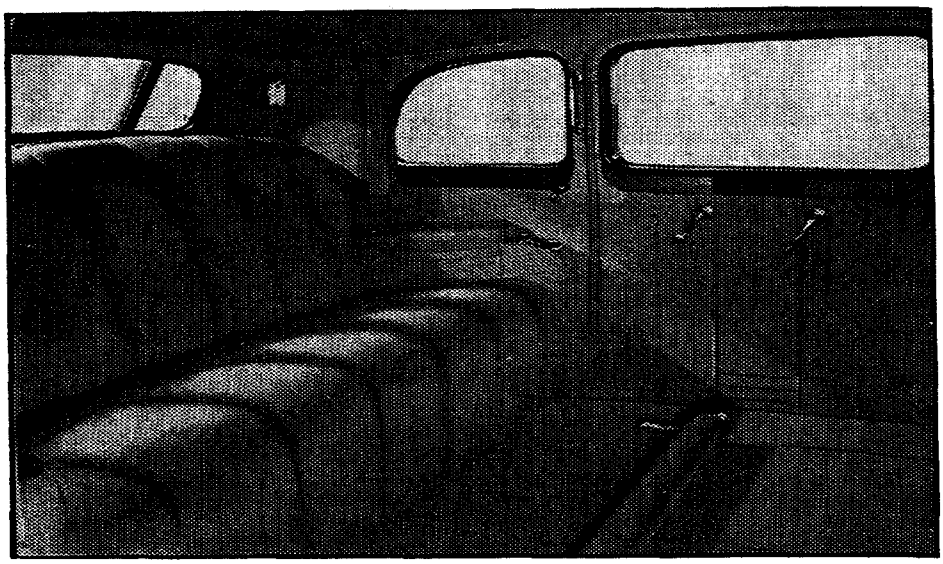
Cadillac Built 90° V-Type 8
135 Horsepower @ 3400 R.P.M.
Bore 3 ½"; Stroke 4 ½"
New Syncro-Flex Flywheel
Greater Performance
Improved Carburetion
Uniform Cooling



With new Syncromatic Shift women will find the new Cadillac V-8 easy to handle.

CADILLAC

Magnificent Among Fine Cars



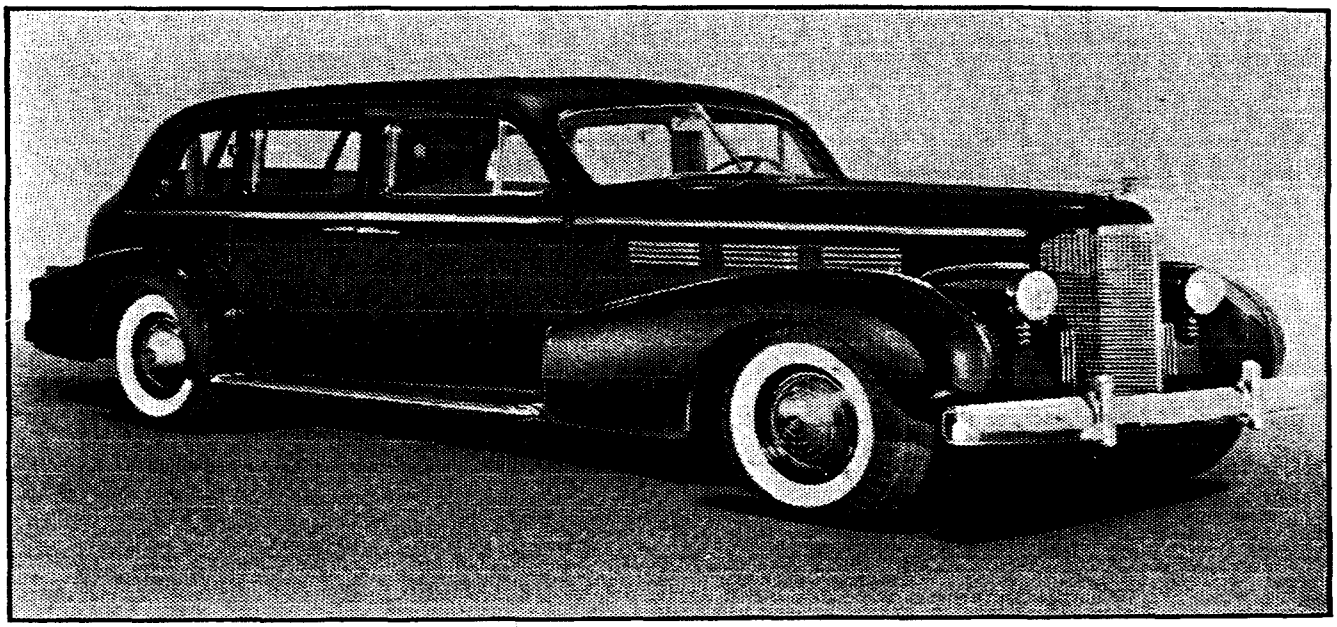
Every interior dimension is greater and every appointment more luxurious than heretofore.

FLEETWOOD COACHWORK:

Twelve Custom Types
Fourteen Exterior Color Selections
Seven Exclusive Weise Upholstery Cloths

ENGINE:

Cadillac-built 90° V-type 8
140 Horsepower @ 3400 R.P.M.
346 Cubic Inch Displacement

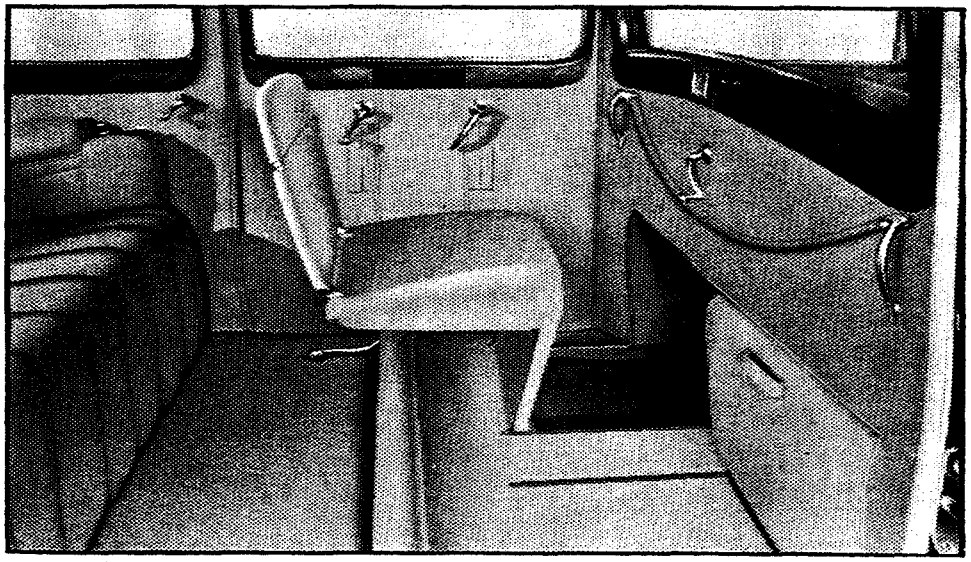


The new Cadillac Fleetwood V-8 reflects an impressive dignity in appearance exclusive among fine cars.

FLEETWOOD

New Proof That The Fine Car Field Definitely Belongs to Cadillac

A novel construction of auxiliary seats in all seven passenger sedans provides these passengers with true comfort for the first time.

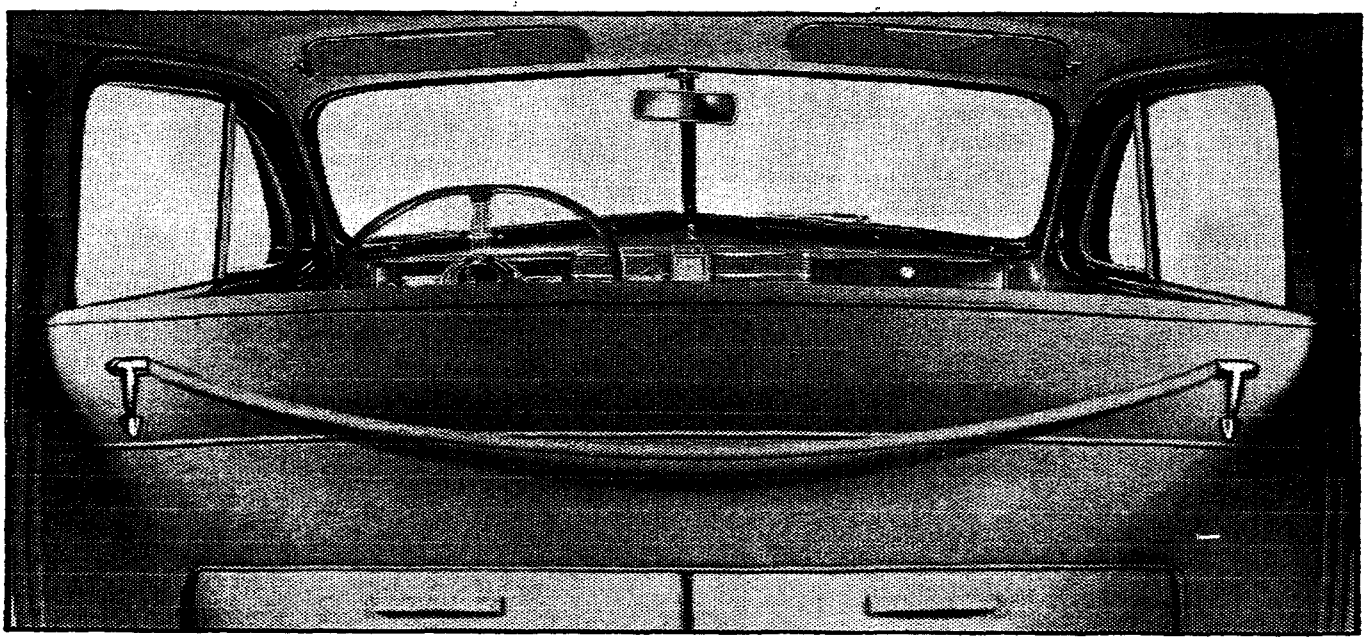


ENGINE (*Cont.*):

Bore 3 ½"; Stroke 4 ½"
Compression Ratio 6.7-1
New Syncro-Flex Flywheel
Improved Carburetion
Improved Cooling
Battery Under Hood

CHASSIS:

141 Inch Wheelbase
Syncromatic Shift
Lower, More Rigid Frame
Improved Dual Ride Stabilizers
Waxed Rear Spring Liners
Precision Built Hypoid Rear Axle

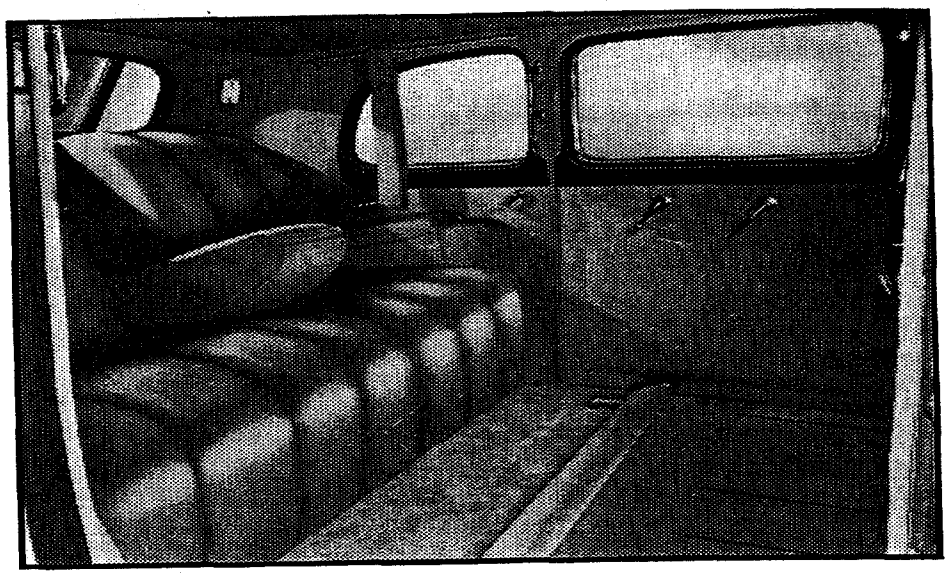


Higher, wider windows and windshield provide greater outward visibility than ever before.

REVISED 12-15-37

CADILLAC

Establishes a New High



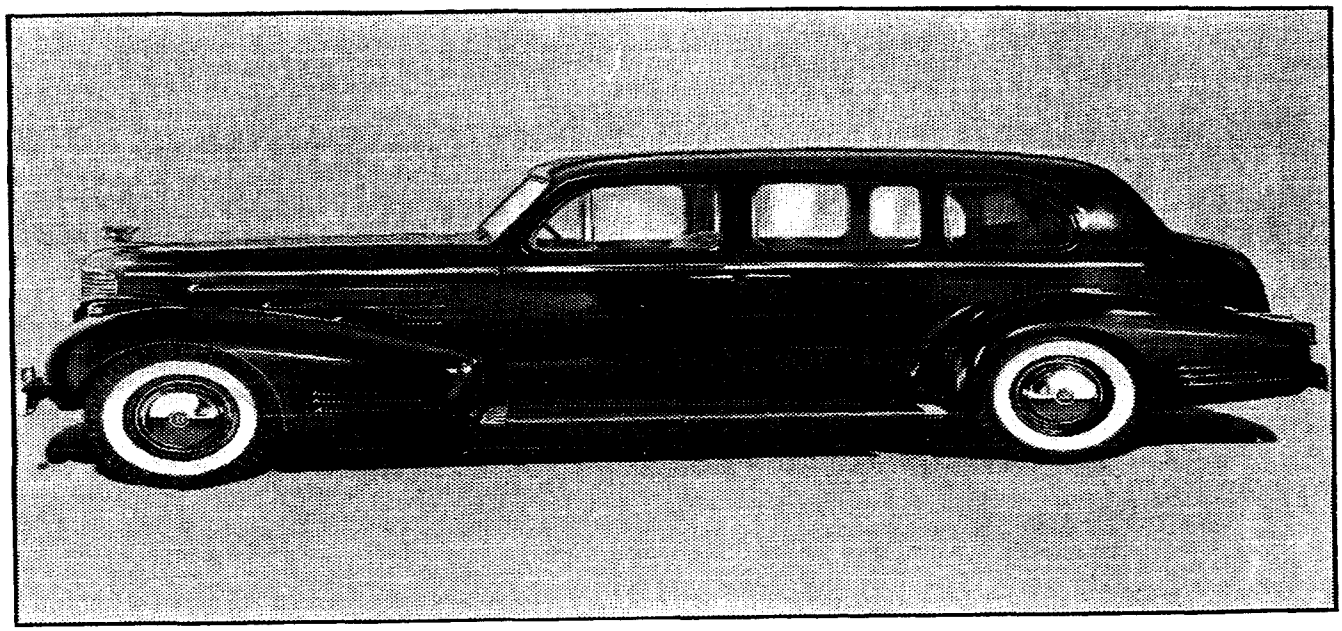
Every interior dimension is greater than the previous V-16, despite a thirteen inch reduction in wheelbase. Such luxury in appointments also surpasses anything offered by Cadillac before.

FLEETWOOD COACHWORK:

Twelve Custom Types
Fourteen Exterior Color Options
Ten Weise Interior Upholstery Selections

ENGINE:

431 Cubic Inch Displacement
Bore 3¼"; Stroke 3¼"
185 Horsepower @ 3600 r.p.m.

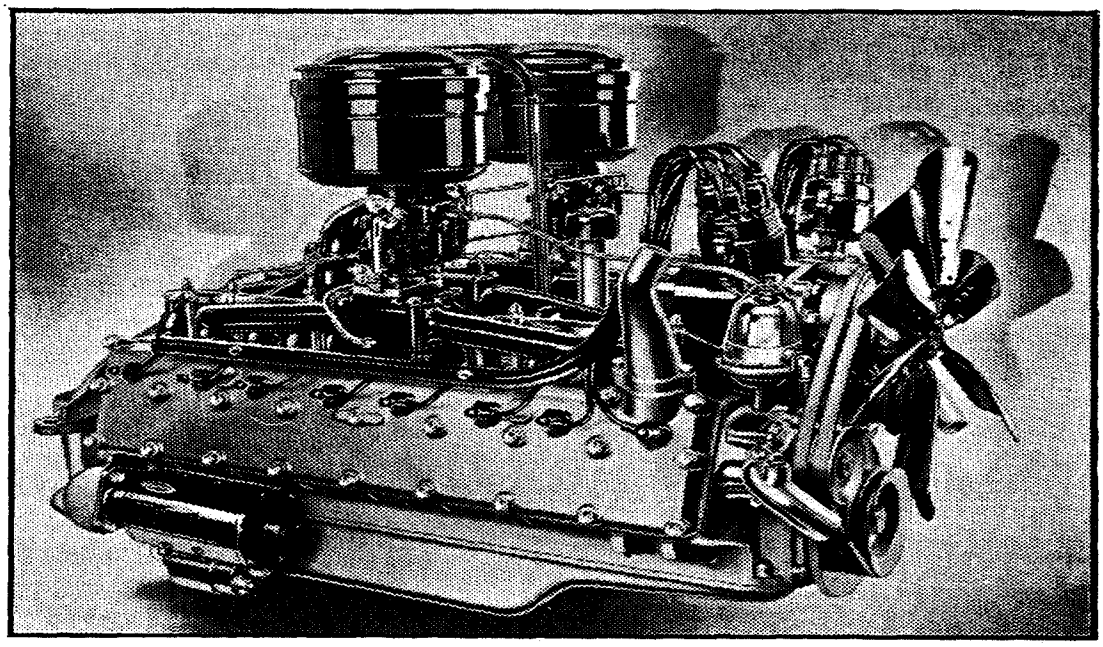


Every attention of artistic design has been given the World's Finest and Most Luxurious Motor Car to insure equally distinctive styling.

SIXTEEN

Standard of the World

The revolutionary 135 degree V-type sixteen cylinder power plant adds another engineering achievement to Cadillac's long list of "World Famous Firsts." Performance, Smoothness and Durability far outclass any Twelve ever built and permanently obsolete such engines.

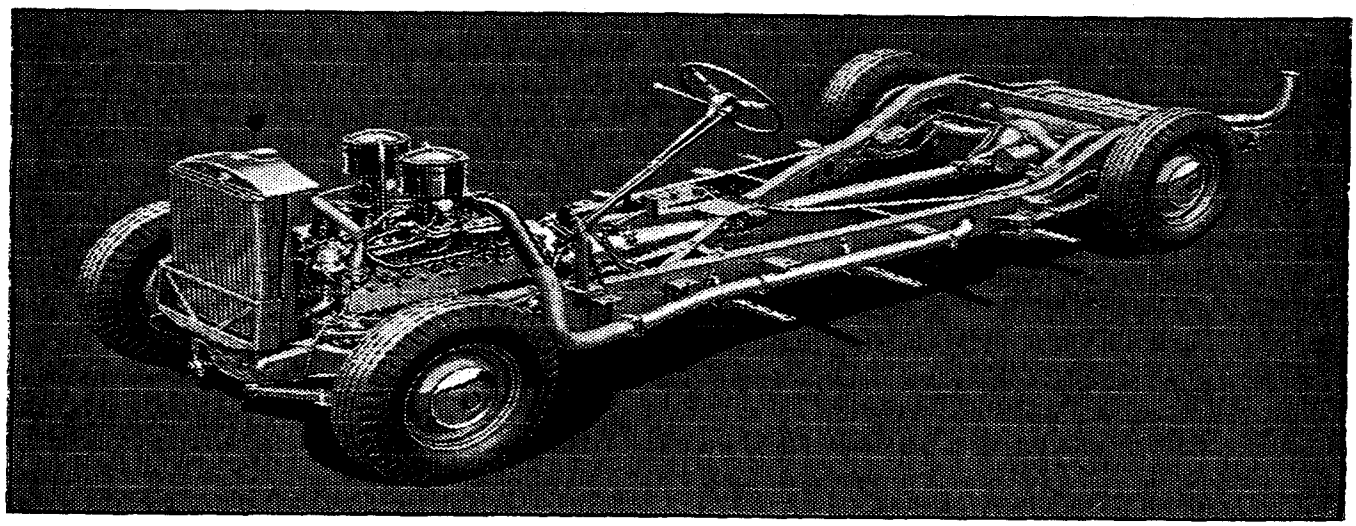


ENGINE (*Cont.*)

- **Lowest Piston Travel of Any American Car**
- **Compression Ratio 6.8:1**
- **Enbloc Cylinder—Crankcase**
- **Nine Bearing Crankshaft**
- **Full Length Water Jackets**
- **Dual Engine Accessories**

CHASSIS:

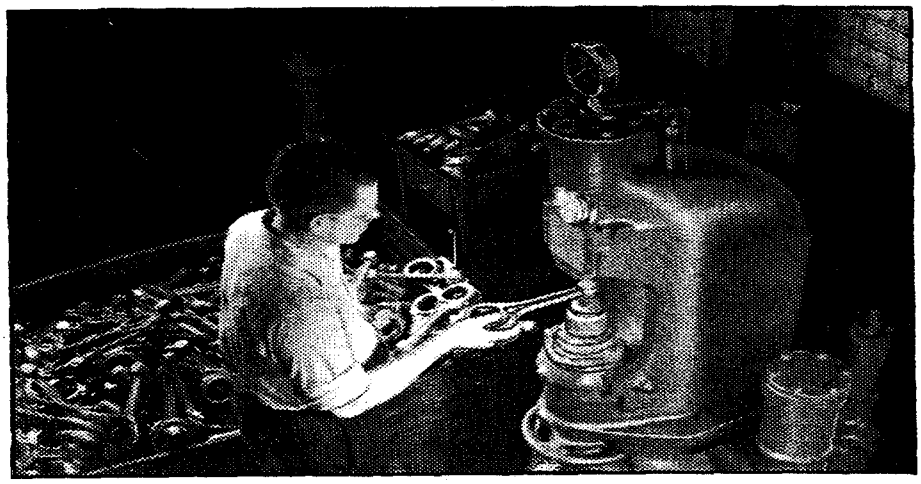
- **141 Inch Wheelbase**
- **More Durable Transmission**
- **Syncromatic Shifting Lever on Steering Column**
- **100% More Rigid Frame**
- **Precision Built Hypoid Rear Axle (Ratio 4.31:1)**

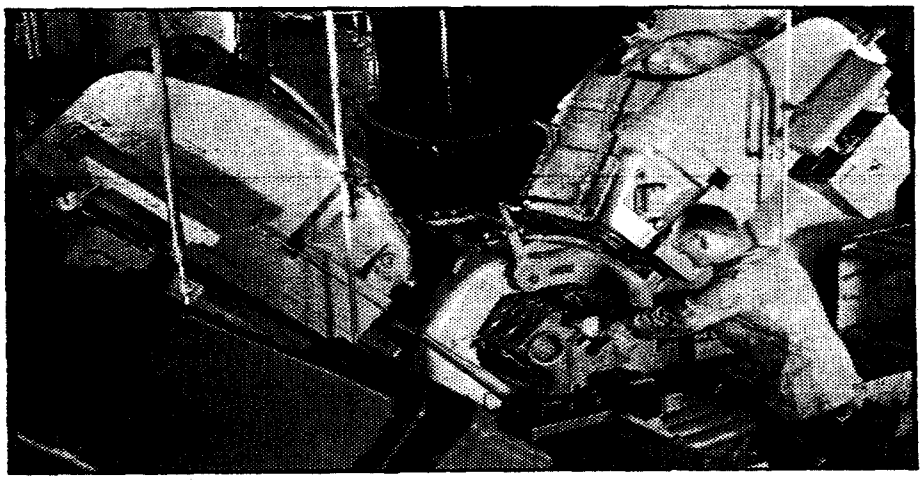


A completely redesigned chassis brings new comfort and even longer life to the Cadillac Sixteen.

REVISED 12-15-37

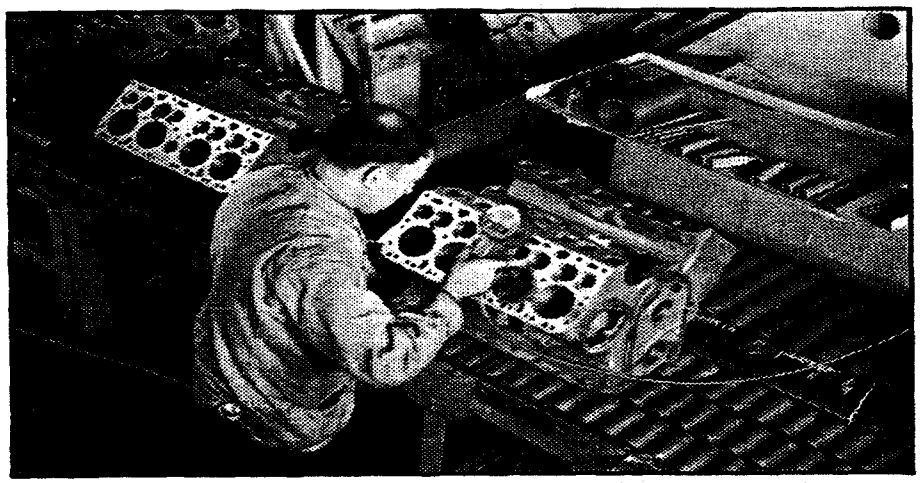
At the receiving room every connecting rod forging is carefully tested for hardness and temper in accordance with metallurgical specifications.

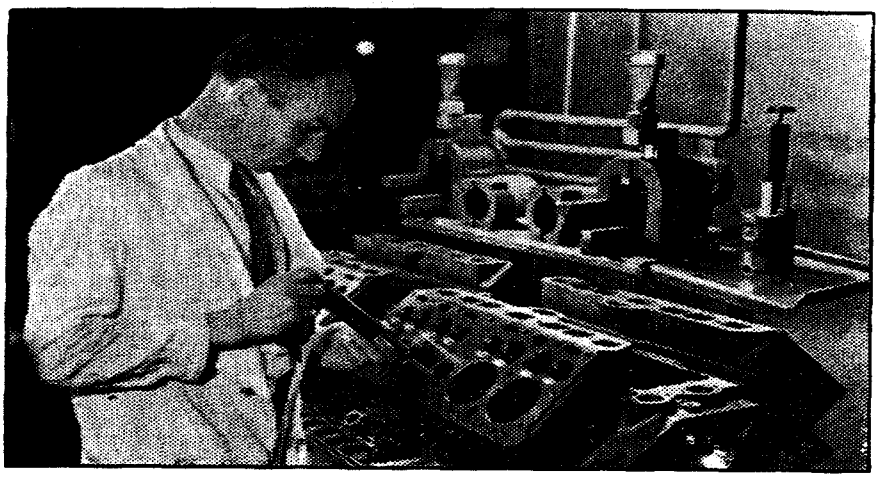




This modern, multi-purpose machine rough bores cylinders and drills valve guide bushing holes for both banks of cylinders in one operation. Only from such efficiency in production is Cadillac able to provide highest quality at lowest cost to Cadillac-La Salle buyers.

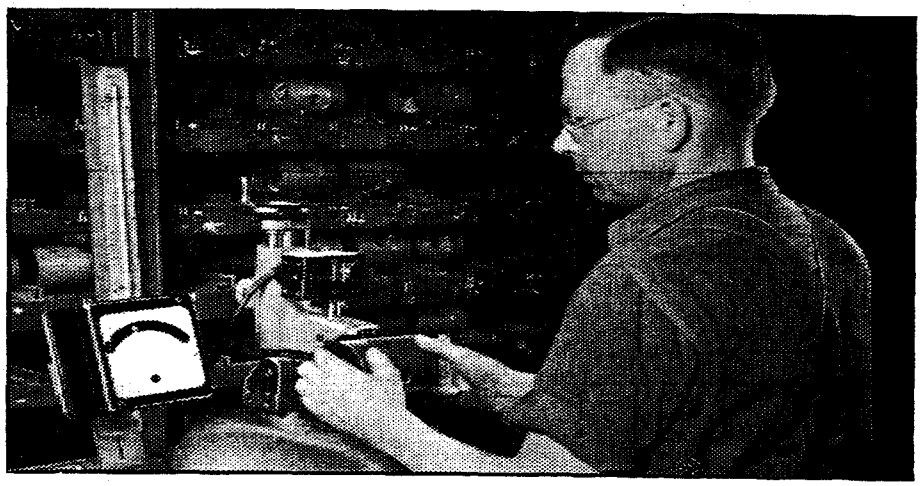
Cylinder bores are checked for wall thickness in all directions with a magnetic gauge to insure uniform engine cooling.

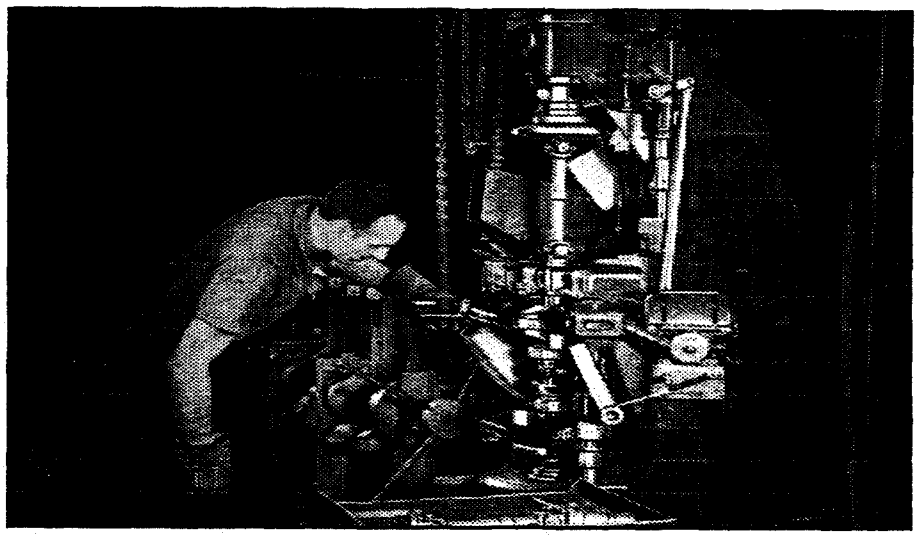




Cylinder bores are graded into one of 30 different sizes with a special expanding gauge.

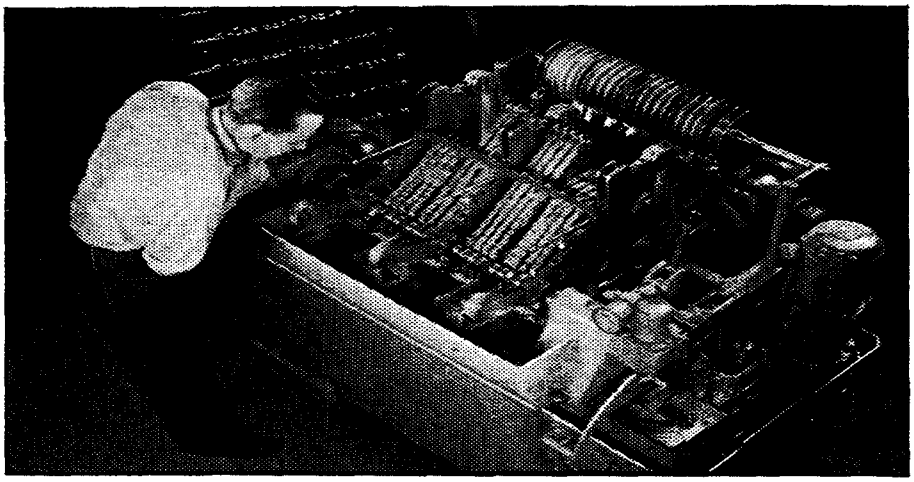
Pistons are likewise graded into 30 dimensional sizes. These two recision steps afford a selective fitting of piston-to-bore within a maximum variation of .00007 inches—about 1—40 the width of a human hair.

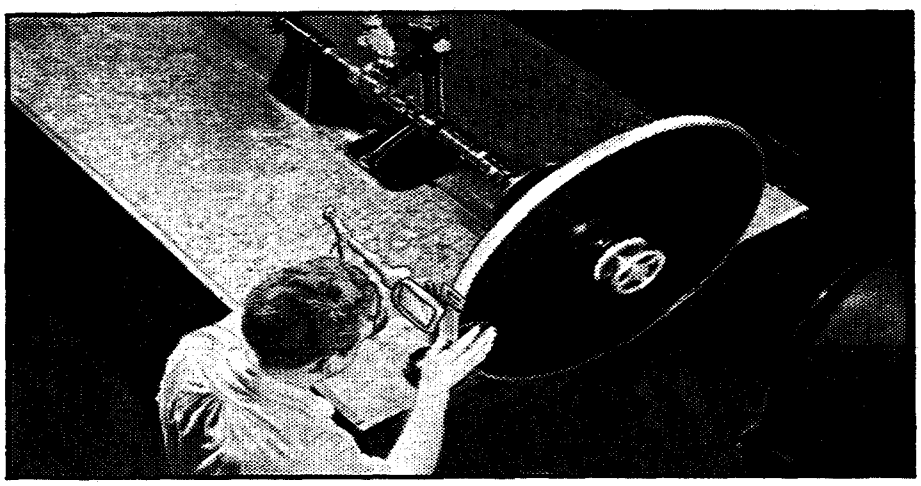




Balancing the crankshaft to $\frac{1}{16}$ ounce inch limit, after which crankshaft, clutch and flywheel will be balanced within a $\frac{1}{2}$ ounce inch limit.

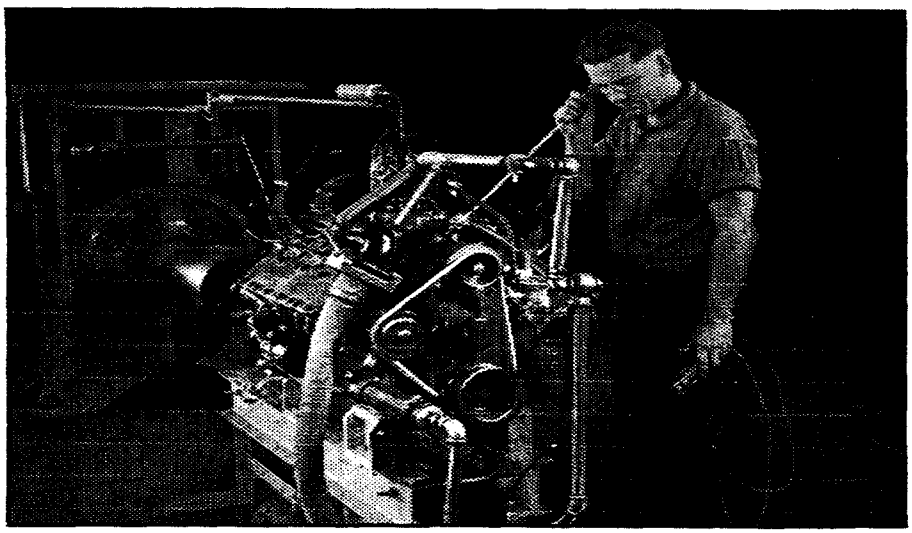
Developed for and first used by Cadillac, this machine polishes all the lobes of the camshaft at once to an extremely smooth finish, which could not possibly be obtained by antedated hand methods.





Accuracy of cam contours are carefully checked because of their importance to performance, with a micrometer and wheel graduated into minutes to simplify the reading of very slight irregularities on the cam surface.

The block test provides a carefully covered run in with special oil under constant pressure to remove all metallic particles and foreign matter, and to provide an opportunity for inspectors to check the operation of every part of the completed engine. This relieves owners of the tiresome 500 mile break-in so necessary in other makes of cars.



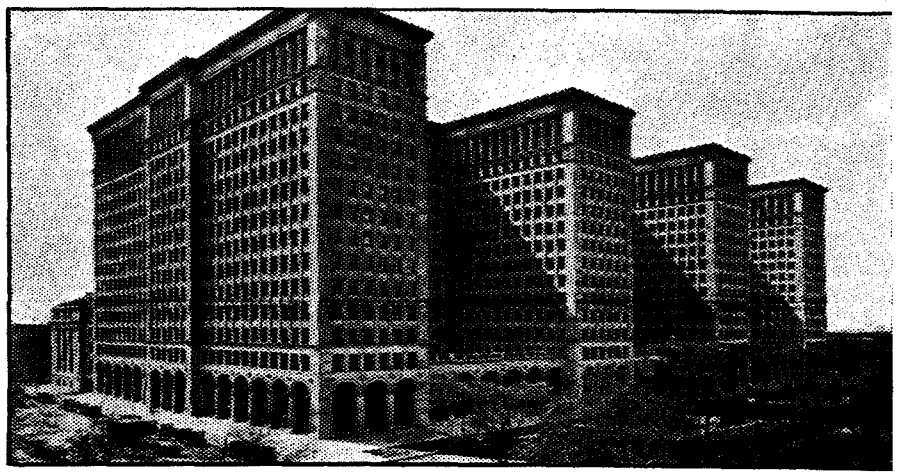
Briefly outlined and illustrated, these are but a few of the craftsmanship operations in every day use at the Cadillac factory. No mention has been made, for example, of transmission and rear axle construction or propeller shaft balance. Reference to precision is necessarily frequent on all of the following pages describing the detailed construction of all parts of Cadillac-La Salle cars because every skilled workman at the plant adheres conscientiously to Cadillac's motto, "Craftsmanship a Creed—Accuracy a Law."

GENERAL MOTORS CORPORATION

Bulwark Behind Cadillac Progress

Cadillac-LaSalle sales leadership is due in large measure to the administrative, engineering, and financial services rendered through Cadillac's affiliation with General Motors.

Largest in the industry, General Motors' very dominance alone lends prestige and buying confidence to people considering the purchase of a Cadillac or LaSalle. Through its own mechanical excellence and engineering superiorities, Cadillac in turn lends prestige and personnel ability to all other General Motors cars. For this very reason, it is of primary importance to the Corporation to insure the continued leadership of Cadillac in the fine car field.



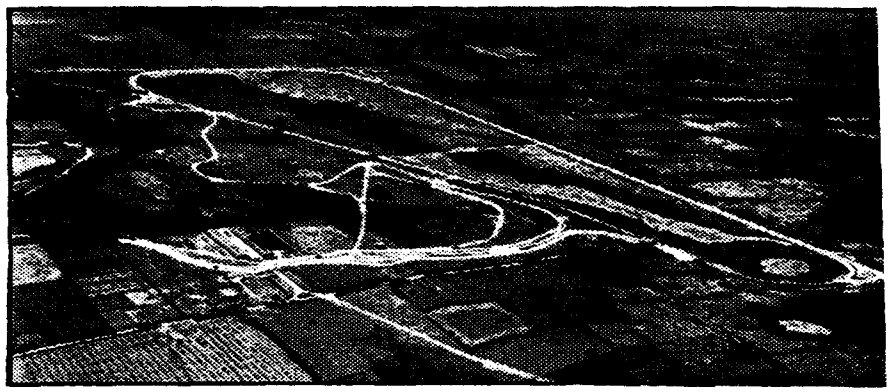
General Motors Building, Detroit, Mich.

Cadillac engineers are in constant contact with General Motors Research Laboratories headed by one of the industry's most famous engineers, C. F. Kettering. Here hundreds of scientists and engineers, equipped with the finest laboratory devices are constantly striving to improve the development of the automobile. Cadillac uses these facilities as a consultant service to have their own specific developments investigated.

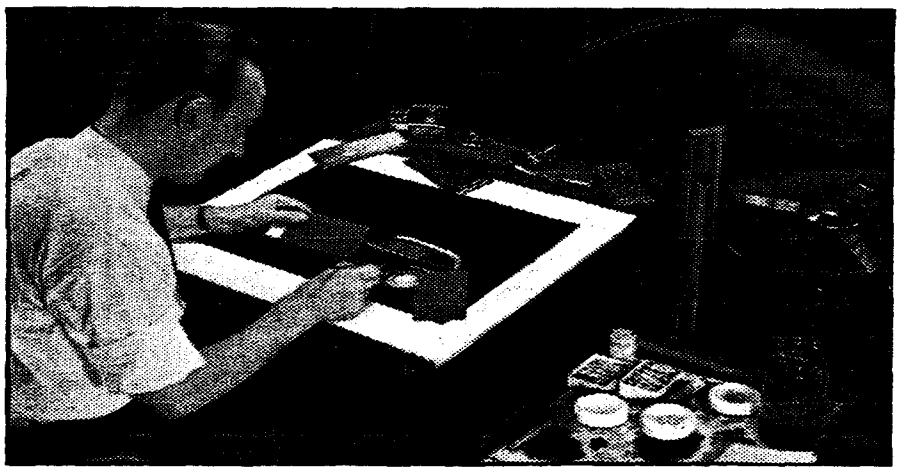


In addition to the table model and the drafting board, experimental Cadillacs and LaSalles equipped with new devices of all

kinds, are continually being tested at the General Motors Proving Ground. New models are driven hundreds of thousands of miles over every conceivable kind of road and under all weather and temperature conditions to determine any possible defect in design before being released for production. In addition, nearly all makes of automobiles, American and European, are purchased annually and subjected to comparative tests with General Motors cars. Only divisional engineers of the Corporation have access to the findings. They are totally unbiased for Proving Ground engineers are interested solely in facts, not in manufacturers. As an ethical policy, their reports can never be used for advertising or comparative sales presentation purposes.



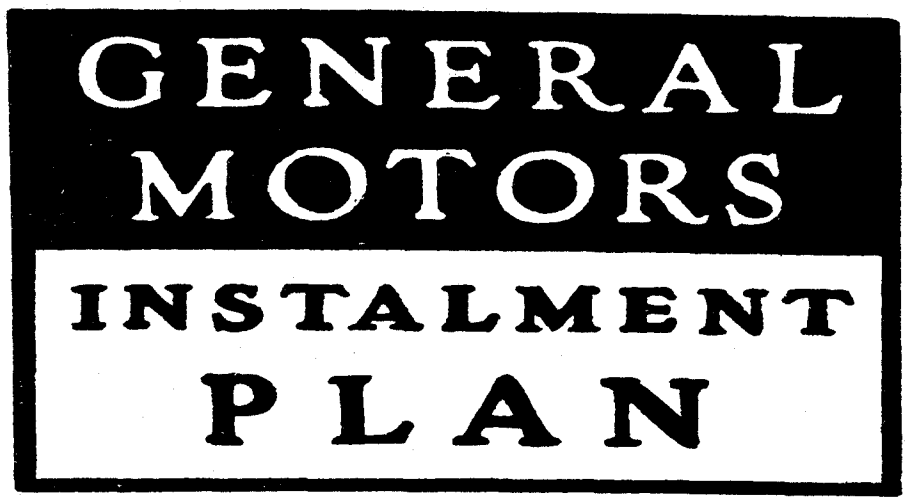
Of equal importance to the Proving Ground for advancements in design is the Proving Ground of Public Opinion. The Customer Research Division contacts hundreds of thousands of automobile owners each year to determine what features they desire in their next cars. Cadillac designers are thus enabled to build Cadillacs and LaSalles *by* and *for* the people who purchase them. This guarantees a high public acceptance before new models even leave the assembly line.



Style leadership and luxurious interior appointments for which Cadillac has always been famous, originate at General Motors Art and Color Section. Cadillac's own designers and Customer Research make recommendations. The Art and Color Department puts these designs in concrete form, final approval resting with Cadillac.

The unsurpassed degree of Cadillac's manufacturing efficiency is the basis for such quality cars at low prices. Economies in mass purchasing and inter-divisional exchange of manufacturing experience afforded by General Motors are additional reasons for greater Cadillac-LaSalle price value.

In addition to product superiority, General Motors provides the Cadillac or La Salle buyer with an unequalled time buying plan. General Motors Acceptance Corporation is the only automobile finance company which is wholly an integral division of a manufacturer. Hence, the objective of G.M.A.C. is to do everything possible to assist in the sale of General Motors cars and not in making a private profit. For this reason G.M.A.C. has pioneered in the development of wider insurance coverage and lower interest rates, and has done most to make it possible for a greater number of people to purchase Cadillacs and LaSalles out of income. Furthermore, the reputation and financial security of General Motors remove purchasers' objection to possible lack of integrity of the financing company so that today a more inexpensive and stable time purchase plan cannot be found.



With General Motors' assets totalling over one and one-half billion dollars, Cadillac is assured a financial security many times greater than any other fine car manufacturer. The future production continuance of Cadillac and LaSalle is definitely established.

Every Cadillac-LaSalle salesman has, therefore, all these decided sales advantages not available to the salesmen of cars manufactured by independent companies:

Extensive Research Facilities
Purchasing Economies
Manufacturing Advantages
Consumer Knowledge
Time Buying Service
Financial Security

CADILLAC
V-TYPE ENGINE DESIGN

The Only Engineeringly Correct Design for Engines of Eight or More Cylinders

Cadillac has concentrated on V-type engines for twenty-four years, utilizing this principle in engines of eight, twelve and sixteen cylinders. On land, sea and in the air this design has proved itself to be by far the best because of its compactness, rigidity, efficiency, hence its DEPENDABILITY. This is one of the first requirements demanded by motor car buyers.

As early as 1922, the eminent automotive engineer, C. F. Kettering, said, "With the unlimited funds and vast resources of the General Motors Corporation at my command, were I assigned the task of building another truly fine motor car engine where the size of the engine required of itself eight or more cylinders, it must needs be of the V-type design."

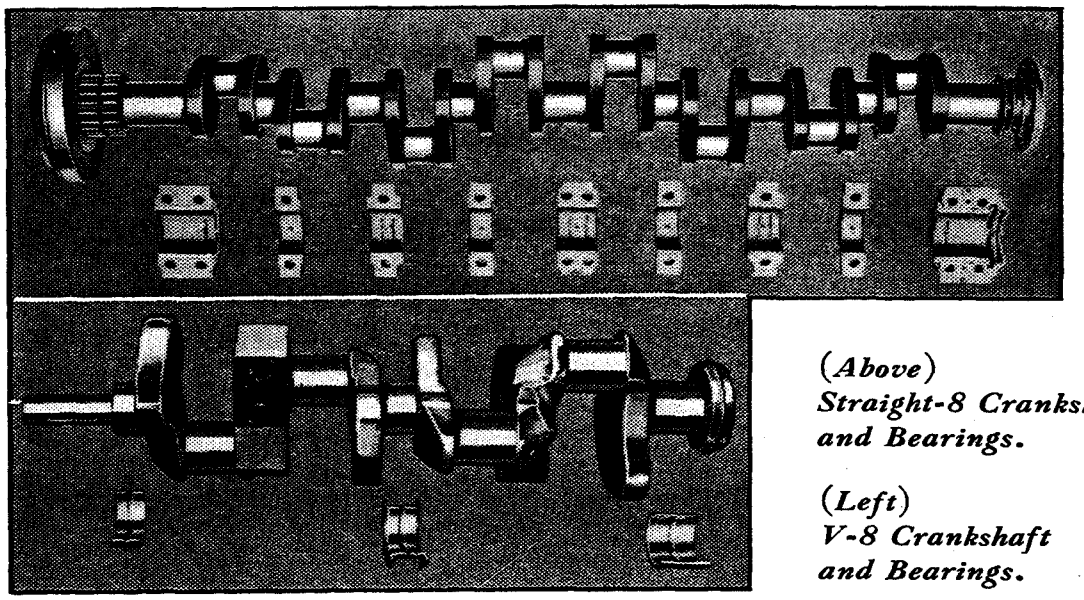
More costly to build than in-line types because of the necessity for expensive, specialized machinery to manufacture angle-spaced banks of cylinders, Cadillac has utilized the vast resources and funds of General Motors and its own unparalleled experience to bring the present Cadillac-LaSalle V-8's and the new Sixteen to unrivalled peaks of performance, smoothness, economy and long life.

Operating Smoothness and Long Engine Life

Engines of V-type design are far simpler, more direct and efficient in their operation than in-line type engines. There are numerous examples of this V-type simplicity which promote longer engine life.

Contrast, for example, the long straight eight crankshaft and nine small bearings with the short crankshaft

and three large bearings of the V-8. It is obviously easier and less costly to align three rather than nine, seven or even five main bearings.



(Above)
Straight-8 Crankshaft and Bearings.

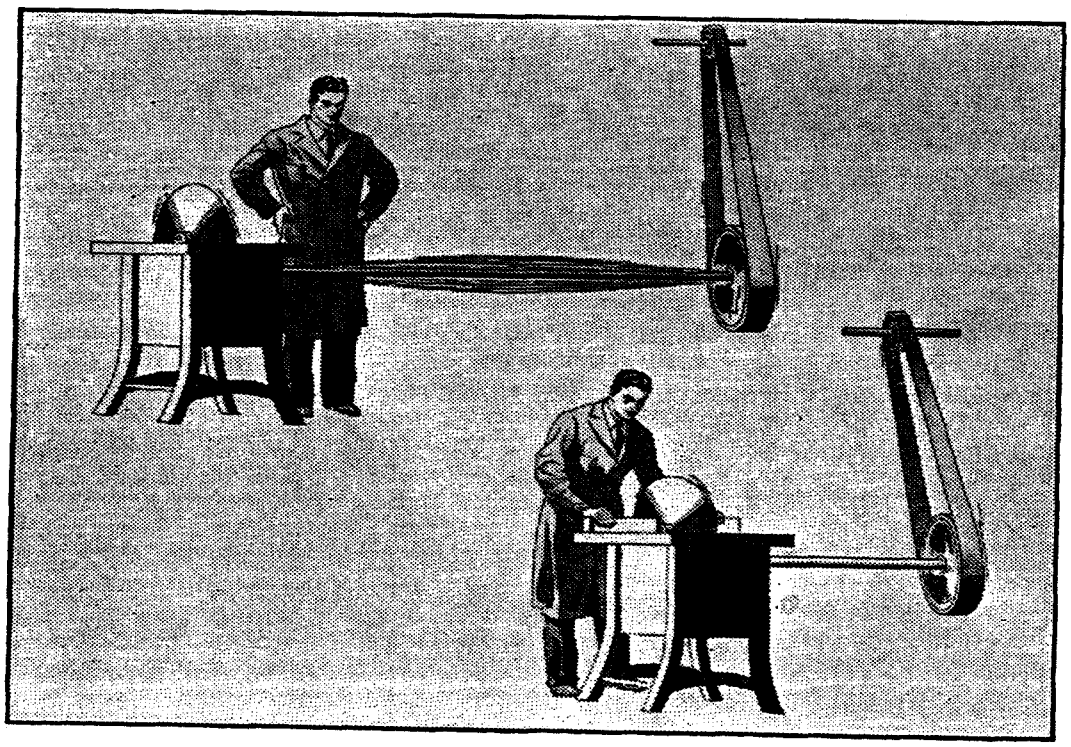
(Left)
V-8 Crankshaft and Bearings.

An important factor in long engine life is absence of vibration. In fact, vibration has a very definite bearing on the wearing life and quietness of all parts of the chassis and body, hence all manufacturers constantly strive to make their engines run more smoothly. In the 90° V-type 8 Cadillac has realized the smoothest of all eight cylinder engines and in the 135° V-type 16 the smoothest automobile engine ever built.

In a V-8 with cylinders paired at ninety degrees, or at right angles to each other, the inertia force built up within one cylinder is completely offset by the equivalent inertia force of the opposite cylinder. One force counteracts or neutralizes a second equal force when they meet at the crankshaft. Therefore, main bearings have no work to do other than supporting the weight of the crankshaft and absorbing reactions from explosions within the cylinders. In the case of a straight eight engine there is no pairing of cylinders. The front cylinder balances the rear cylinder of the engine, conse-

quently to cancel each other, the inertia forces must be transmitted from one end of the crankshaft to the other. This increases crankshaft and crankcase stresses, increases the work which main bearings have to do, and by increasing crankshaft deflection, causes the typical straight eight high speed vibration.

Work which main bearings must do has been accurately measured by Cadillac engineers. Taking a Cadillac V-8 engine and a typical straight eight engine of practically identical cubic inch displacement they found that the total average maximum load or pressure imposed upon the three V-8 main bearings is 173 pounds per square inch, and on the five straight eight bearings 791 pounds per square inch. Five small bearings having no greater area must do five times the work of three large bearings. Operating smoothness, dependability and long life is obviously greater in Cadillac V-type engines.

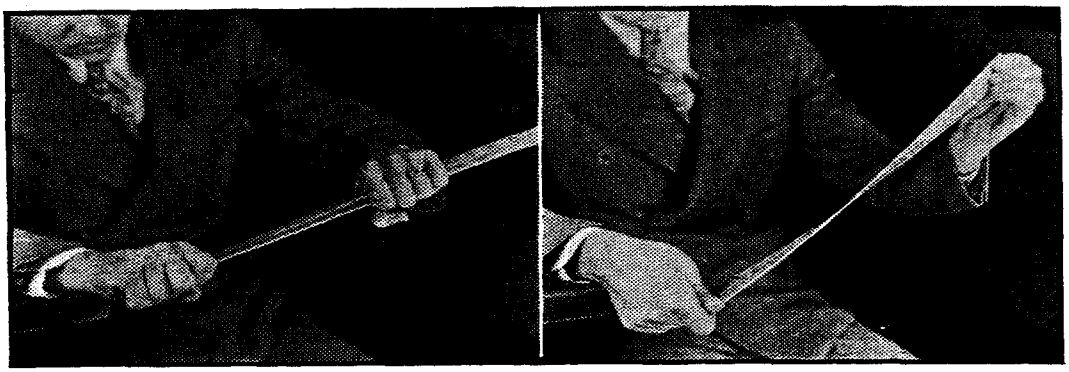


A long driven shaft has far more whip than a short shaft.

A V-type eight cylinder engine is, by comparison with an eight-in-line engine, a twin four. Hence, it is

much shorter and more compact. Given two engines of equal cubic inch displacement, the straight eight crankshaft must be longer than the V-8 crankshaft. The V-8 crankshaft, being short and of large diameter, is much better able to withstand stresses imposed upon it by explosive forces of the engine and centrifugal forces set up by rapid crankshaft revolutions. This is an additional factor in longer life and greater smoothness.

Power forces react upon every crankshaft causing a rapid, alternate twisting first in one direction, then in another. This causes torsional vibration. The short, rigid Cadillac or LaSalle V-8 crankshaft is but negligibly affected by these twisting forces while the long shafts of the straight eight engines are seriously affected. This may be demonstrated with an ordinary desk ruler.



One-half Ruler Twist *Full Ruler Twist*

First, hold one-half the ruler's length and twist in opposite directions with each hand. Note how much resistance is offered to the twisting force. Now try the same procedure, using all the ruler's length. This demonstrates the effect of forces developed in a straight eight engine upon the crankshaft.

At high speeds, explosive forces within any engine tend to make the crankshaft bend. Again, the short ruggedness of the V-8 crankshaft resists this bending tendency to a far greater extent than is possible with a long, thin straight eight crankshaft. To demon-

strate, hold the ruler on the desk with one-half of its length projecting over the edge. See how rigid the ruler remains when attempts are made to snap it. Now extend the overhang of the ruler until as much as possible of its length projects over the edge of the desk. Its end may be snapped much more easily. The twisting and snapping tendencies of the crankshaft during engine



One-half Ruler Snap *Full Ruler Snap*

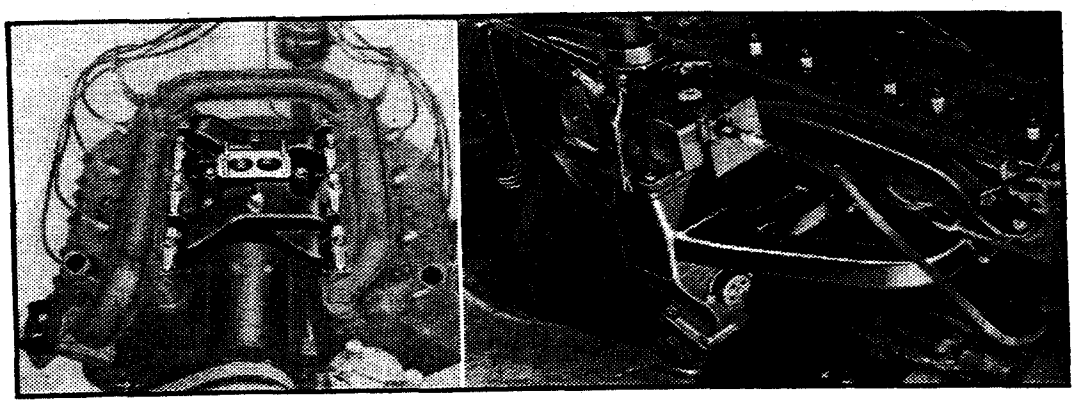
operation are, of course, in small fractional measurements, but relatively slight deviation from its true, predetermined position creates extreme engine vibrations. The short, rigid crankshaft of the Cadillac-LaSalle V-8 engines holds these deviations to a far lower amount than it is possible to attain with the long crankshafts of any straight eight engine. This feature, in addition to inherent cancellation of inertia forces, make the Cadillac-built 90° V-8 engines smoother and quieter to operate, and also provides longer, more dependable engine life than any straight eight powered automobile.

V-8 DESIGN PROVIDES MOST EFFICIENT OPERATION

Equalized Carburetion

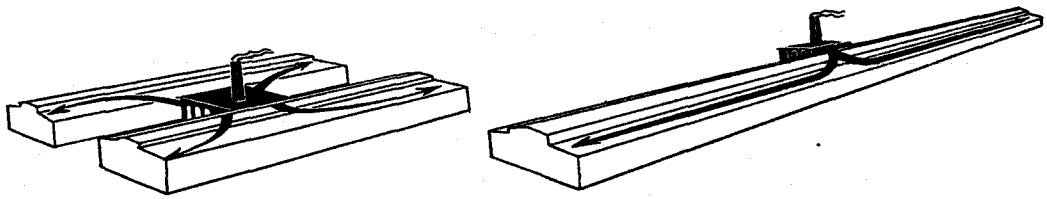
With V-type design Cadillac engineers are able to centralize carburetor location above and between the two cylinder blocks. The carburetor's central location permits equal distribution of fuel mixture to every one of the eight cylinders. The farthest cylinder is only

about half the corresponding distance from the carburetor that it is in straight engines. This eliminates



V-8 Equalized Manifold *Straight-8 Unequal Manifolds*

the need for long intake manifolds in which vaporized fuel has time to condense.



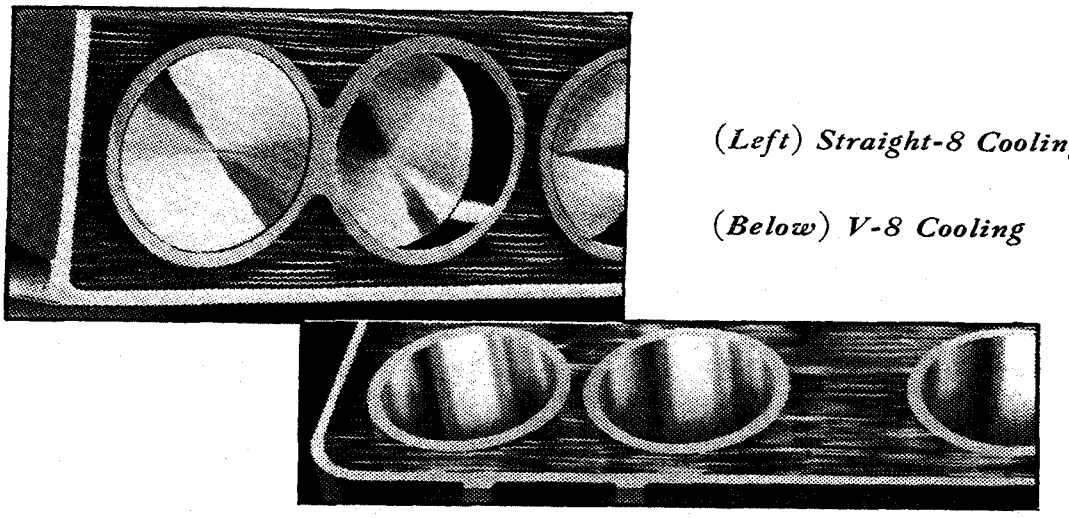
A factory is heated from a central source. *Much of the heat to this factory would be wasted.*

Positive Cooling

In the Cadillac V-8 water enters the right hand cylinder block under pressure. Half of the water is by-passed to the left hand block. Thus, the maximum distance that cooling water must travel through the block is far less and the variation in temperature throughout the engine is about half of that in a straight eight engine. In straight eights water enters the block at the front and must travel the full length of the engine before cooling the rear cylinder. Cooling effectiveness obviously diminishes as water passes from front to rear of the engine. This results in hotter running rear cylinders, causes uneven cylinder temperatures, and, therefore, enhances the danger of warping cylinders and valve seats which results from unequal heating. Lubricating quality of

the oil is reduced and oil consumption increases under wide variances in temperature.

The compactness of V-type design also permits a greater water cooling area around cylinders and valves.



(Left) Straight-8 Cooling

(Below) V-8 Cooling

Because of the great length of a straight eight engine, which must be fitted into a limited space, water areas must be restricted in size and cooling efficiency is lost.

V-type design lends itself admirably to efficient cooling system operation with resultant operating economies and longer engine life.

Efficient Lubrication

Three large main bearings each have greater surface area, hence retain oil longer and are easier to lubricate than any one of the seven or nine small bearings of the eight-in-line crankshaft.

There are other lubrication advantages inherent in V-type design. Oil conduits throughout the engine are shorter, reducing danger of plugged oil passages. Oil is directed under pressure through drilled holes in the crankcase removing the danger of engine failure from broken oil lines where a piping system is used.

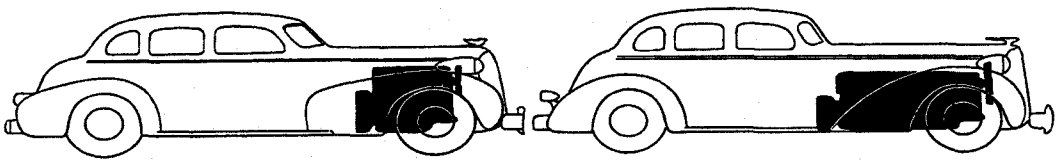
Due to the shortness of the V-8 crankcase, positive

lubrication is assured, regardless of the steepness of the road or of rapidity of deceleration. The oil pump inlet is always on the oil surface. When straight eight engines operate on grades or decelerate from high speeds the oil flows to one end of the crankcase which may result in the engine being oil starved.

Because of its compactness the short V-type eight requires fewer camshaft bearings. This further simplifies the lubricating system, insures dependability, and decreases operating costs.

V-Type Design Saves Space

Cadillac V-type design permits an engine of greater size and power output than a straight eight to be placed under much shorter hood length, leaving greater room for interior body dimensions. A V-8 engine is six inches shorter than a straight 8 engine of equal size.



A V-type engine is six inches shorter than a straight-8 of equal size

If it were attempted to produce a straight eight engine with similar displacement in a short engine space, the bore would have to be small and the stroke long. This would result in very high piston speeds, as is found in big straight eight engines of today, with consequent increased wear and decreased engine life. Should the bores be widened and the stroke shortened, more engine space would be required. To accommodate such an engine, hood length would have to be increased and passenger space decreased even more than in the present straight eights.

V-Type Design Is Inherently More Economical

Economy of operating an automobile can only be judged by the entire duration of car ownership. It is the total cost of maintenance and repairs in addition to expenditures for gasoline and oil which determine whether or not a car is economical to own. In summarizing, consider these exclusive economy features obtainable only in Cadillac or LaSalle through the employment of the inherently balanced 90° V-8 engines:

Economy of longer, more dependable engine life through simplicity and absence of vibration in design.

Economy of a short, rugged, three bearing crankshaft.

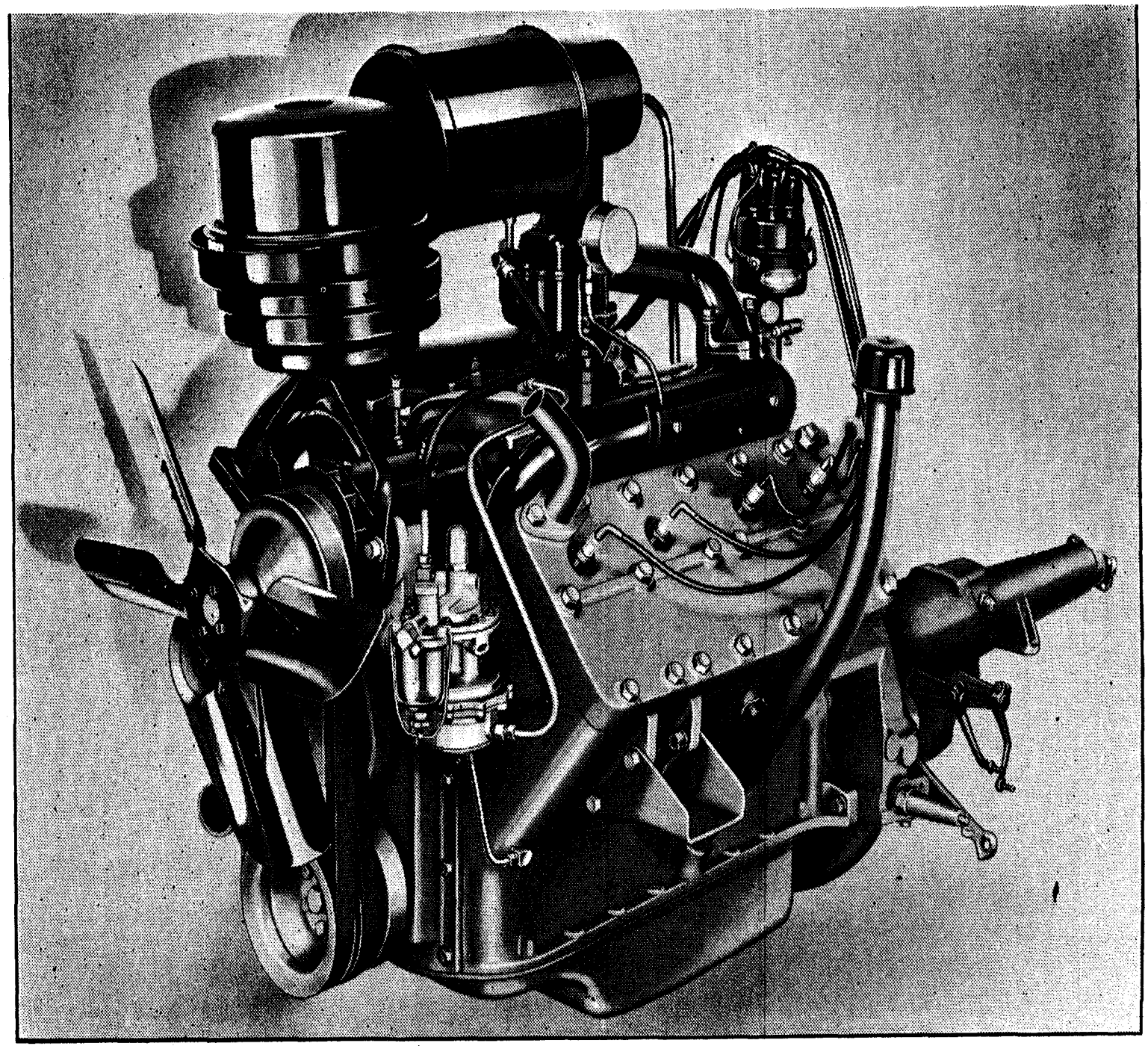
Economy of equal distribution of fuel mixture.

Economy of more positive engine cooling.

Economy of more efficient lubrication.

Economy in engine space.

These six inherent advantages in engine design alone, without reference to Cadillac excellence in manufacture, prove the superiority of Cadillac and LaSalle over all makes of straight eight design.



The La Salle 90° V-type eight cylinder engine

TWO V-EIGHT ENGINES FOR 1938

Cadillac has built two 90° V-type eight cylinder engines for 1938. A V-8 engine of 346 cubic inch displacement powers all Cadillac and Cadillac Fleetwood V-8's. An engine of 322 cubic inch displacement is employed in LaSalle V-8.

The performance, smoothness and quietness of the Cadillac-built V-8 engine employed in the new LaSalle V-8 is one of the most important features of this outstanding leader for 1938. This engine is the basis for LaSalle's long list of completely satisfied owners. Wider radiator grilles increase air distribution over the radiator core face, thus improving engine cooling. A new, more positive rear main bearing oil seal and a new flexible oil level dip stick have been added. Improved carburetion increases economy. Placement of horns behind the radiator grille and improved high tension wiring lend a much neater appearance and provide greater accessibility in the engine compartment. With the single exception of the Cadillac Sixty, LaSalle continues to be the best performing eight cylinder motor car built.

The V-8 engine employed in Cadillac also embodies all of the superlative qualities of the 1937 Series and many outstanding refinements. A most noteworthy improvement is the introduction of the Syncro-Flex Flywheel which provides Cadillac with such silky smoothness that these cars may be conservatively called the smoothest and quietest of all eight cylinder automobiles.

The improved rear main bearing oil seal is also used on all Cadillac V-8's.

The accelerative ability of the Cadillac Sixty and Cadillac V-8 is even more outstanding through axle changes. The Sixty has a 3.92—1 ratio and the V-8 a 4.58—1 ratio. These low ratios, typical of Cadillacs

and LaSalle, provide their exceedingly large, powerful engines with low piston travel which makes these engines quieter, longer lived and the most economical to operate relative to their size of all engines built today. Inherently undesirable accessory drive gears are, therefore, unnecessary to all Cadillac-built engines.

Greater power and performance is now available in the Cadillac Fleetwood by increasing the horsepower development of this model to 140. This has been achieved by increasing the compression ratio to 6.7—1. Other Cadillac V-8's and LaSalle continue with a 6.25—1 compression ratio.

A torsional vibration dampener is used on the Cadillac crankshaft as a refinement to this more powerful engine.

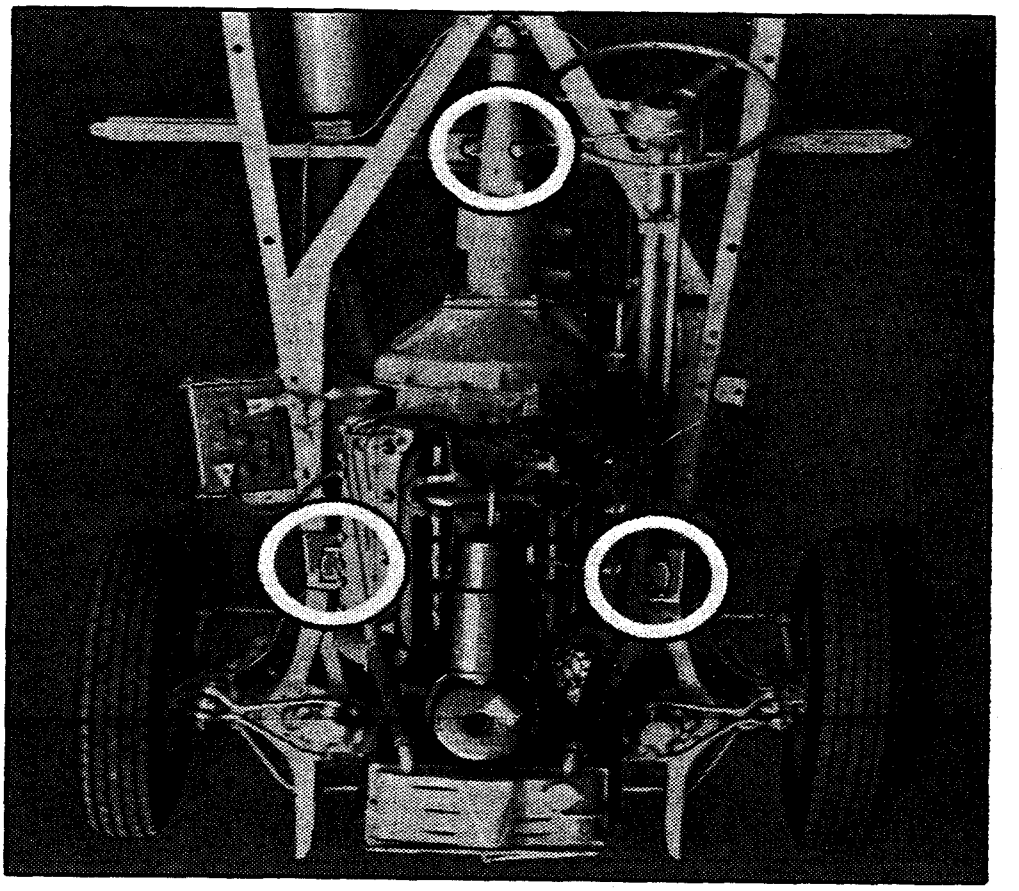
Two Peak Load Generators, both of improved capacity, are used. LaSalle, Cadillac Sixty and V-8 have a voltage regulated Peak Load Generator. Its charging rate is nearly constant throughout the speed range of the car above 20 miles per hour. A current control is added to the Fleetwood generator which makes its charging rate absolutely constant throughout the speed range above 20 miles per hour.

Mountings

The engine is supported at three points in live rubber. Two rubber cushions support the engine on both forward sides on the frame side bars. A third support is at the rear of the transmission extension. These three supports permit the engine to rock freely and utilize the engine's weight in steadying the frame. This is an important factor in Cadillac-LaSalle high speed roadability. Use of three supports permits the engine to align itself constantly with the frame like a three-legged stool.

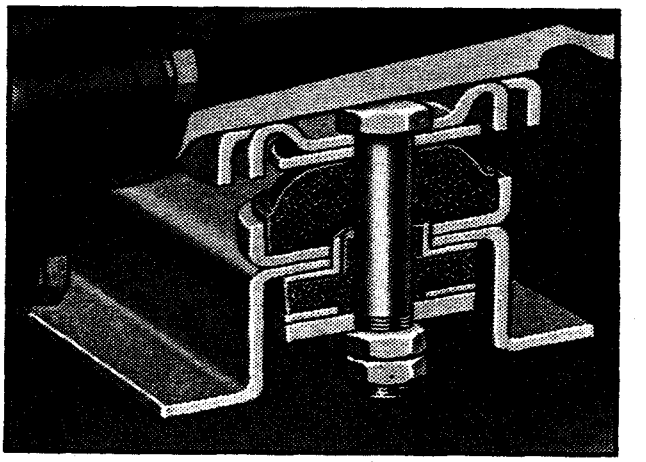
Other methods involving only one support for the

forward part of the engine do not provide sufficient rigidity for front frame arms, hence such cars have



Location of 3-Point Engine Supports

noticeably poor roadability. High speed handling feels insecure.



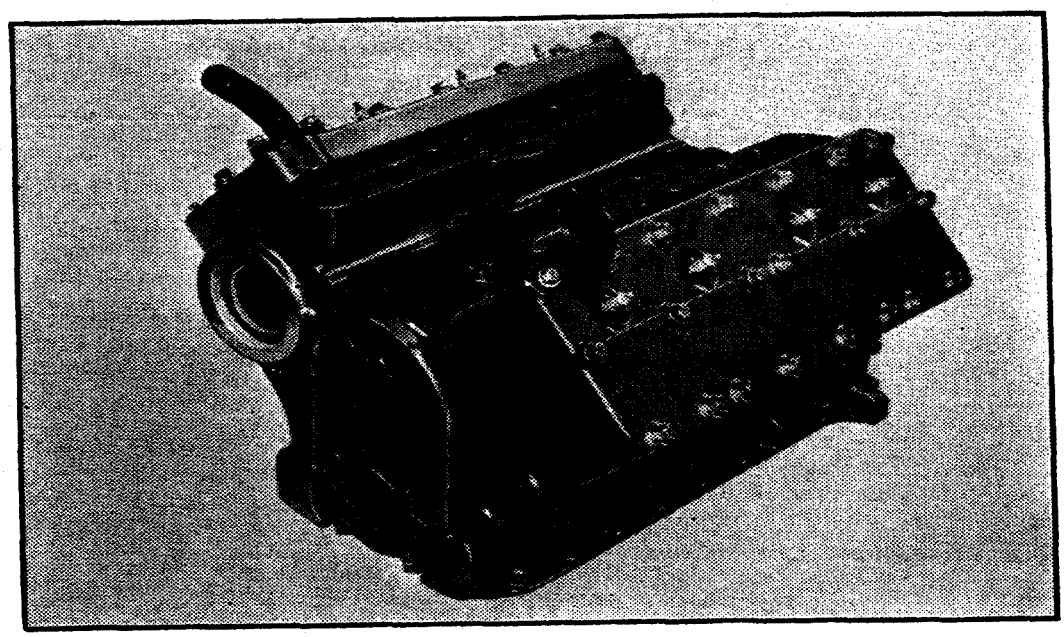
Rear Engine Mounting
LaSalle

The rear V-8 engine support is of novel construction. It consists of two rubber parts: a compression cushion

and a rebound cushion. The compression cushion counteracts downward thrusts of the engine caused by power forces. The rebound cushion absorbs the reactionary upward movement of the engine's weight and completely insulates engine tremors from the frame bracket. The effect is to allow free movement of the engine through a limited distance, after which resistance of the rubber builds up preventing excessive engine motion in the chassis at high speeds or over rough roads. This may be compared to the action of a very flexible spring in combination with a shock absorber, whereas conventional rubber type cushions correspond to a relatively stiff spring without shock absorbers.

Enbloc Cylinder and Crankcase

Crankcase and block are cast in one mold from very hard, specially prepared alloy of steel and iron. The enbloc casting is then placed in an "equalizing" oven



Rigid Enbloc Cylinder—Crankcase

to season the metal by slow cooling to normal temperature. An extremely rigid, durable engine foundation is thus secured. Other manufacturers use such

soft, inexpensive cylinder block iron that the material will not resist the hammering of valves in their seats, hence have to use valve seat inserts.

Additional features of great strength result from shortness, greater width and compactness made possible by V-type design. A boss, or column, extends from the center of each cylinder block top face to the crankcase which ties the unit firmly together.

Cylinder wall thicknesses are carefully checked in all directions with an electric gauge. Cylinder walls are triple-honed which imparts a smooth, glass-like finish. This increases piston ring life, minimizes scoring possibilities, promotes even cooling, and, therefore, increases engine efficiency and long life.

Each bore is measured with an electric expanding gauge and graded into one of thirty sizes. Pistons are likewise weighed and graded into thirty sizes. This permits an exact selective fitting of piston-to-bore to .00007 inches variation in clearance. It insures maximum operating efficiency of the engine.

Cylinder Head

The cylinder head is cast of the same material as the block to insure uniform expansion of the two units when heated. This avoids development of leaks and gasket troubles prevalent in engines with cylinder heads which differ in material from the block. The head is light in weight for flexibility which provides a better seal at the union with the block. This also reduces cylinder bore and valve seat distortion.

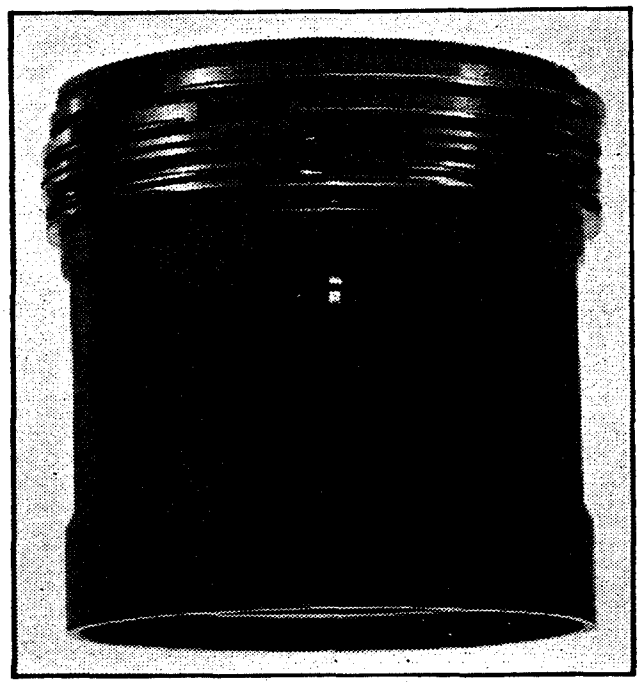
The compression ratio for V-8 engines employed in LaSalle, Sixty and V-8 is 6.25 to 1. This high standard ratio permits the use of standard grades of fuel without development of pinging noises.

The Fleetwood has a 6.7—1 compression ratio

which increases its power output to 140 H.P., increases its maximum speed and improves performance. Ethyl fuel is required.

Pistons and Rings

Aluminum alloy pistons are subjected to a costly anodizing process. This is a special electro-chemical bath treatment which gives a gem-like hardness to the light weight aluminum. Advantages of Anodized Aluminum Alloy pistons are: lighter weight, greater strength, and greatly minimized wear and scuffing, particularly when the engine is started when cold.



T-Slot, Anodized Finish, 4-Ring Piston

The T-slot type of piston is used for positive assurance of uniform expansion and contraction. The T-slot permits walls of the piston to expand freely at all points, thereby fitting itself evenly and correctly within the cylinder bore. This is impossible in the Invar-strut type because such pistons are held rigidly at the struts expanding unequally at other points.

Cadillac-LaSalle pistons are ground slightly out of round, which is also important to uniform bore fitting,

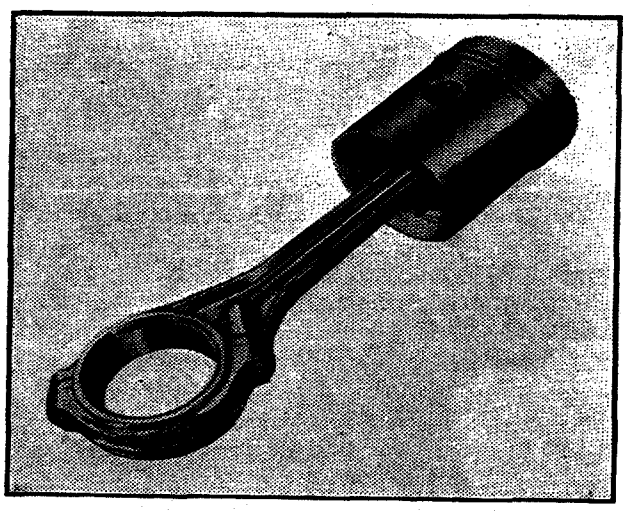
full compression and more efficient engine operation.

Wrist pins are first measured to one-tenth of one-thousandth variation in concentricity with a special micrometer before being fitted to the pistons by hand. This excellence in precision is exclusive to Cadillac. Pistons for the more powerful Cadillac engines have wrist pins of special strength. They are bored with tapered ends to give increased thickness at the center for increased strength and minimum weight.

Connecting Rods

Connecting rods of carbon steel are strong and light in weight. Each rod is split at an angle which permits quick removal of the rod through the top of the cylinder bore facilitating service work. Bearings are diamond bored for true center accuracy.

Rifle-Drilled Connecting Rod



Positive wrist pin lubrication is made possible by rifle-drilled holes in each rod from the big end bearing directly to each wrist pin bearing.

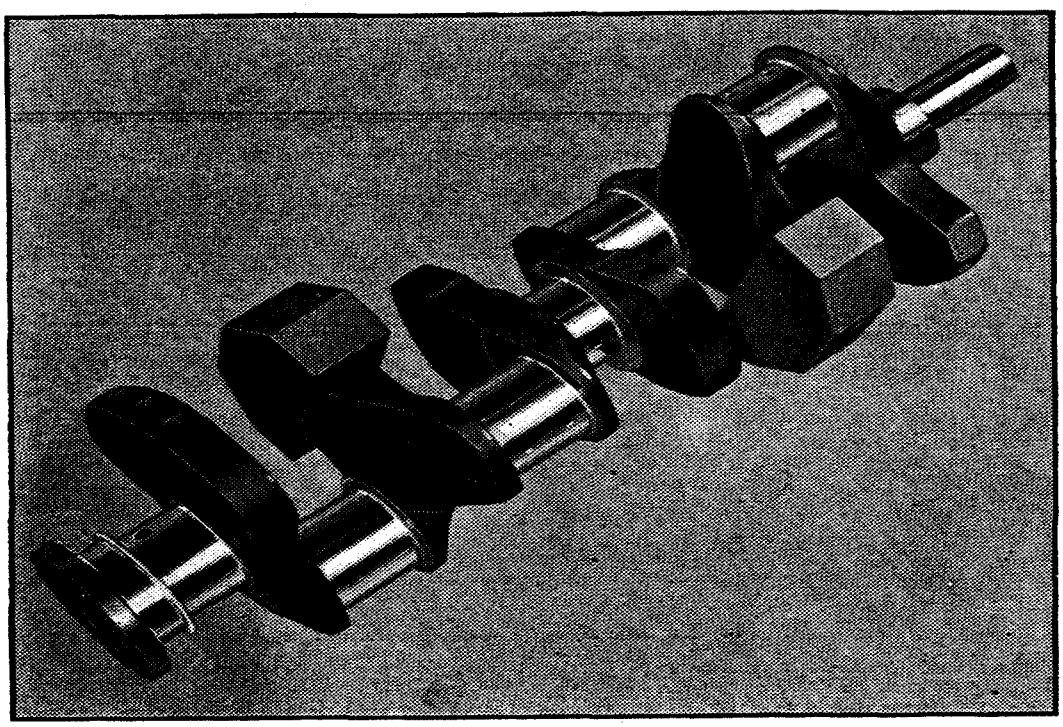
Cylinder bores are cross lubricated. Rods of the right hand cylinder block lubricate the left cylinder block bores and vice versa. With each revolution of the connecting rod oil is squirted out through a small hole in the connecting rod's big end. Such positive lubrication

is essential to prevent piston-to-bore wear in a cold engine. It is another exclusive feature only obtainable with V-type design.

Each piston, connecting rod, bearing and wrist pin assembly is balanced to closest precision limits of 1/32 of an ounce for perfect running balance and engine smoothness.

Crankshaft

The crankshaft is a high carbon steel forging and weighs ninety pounds. It is carefully balanced on a special machine to 1/16 ounce-inch limit and again balanced after flywheel and clutch are attached to 1/2 ounce-inch limit.



Short, Rugged Crankshaft

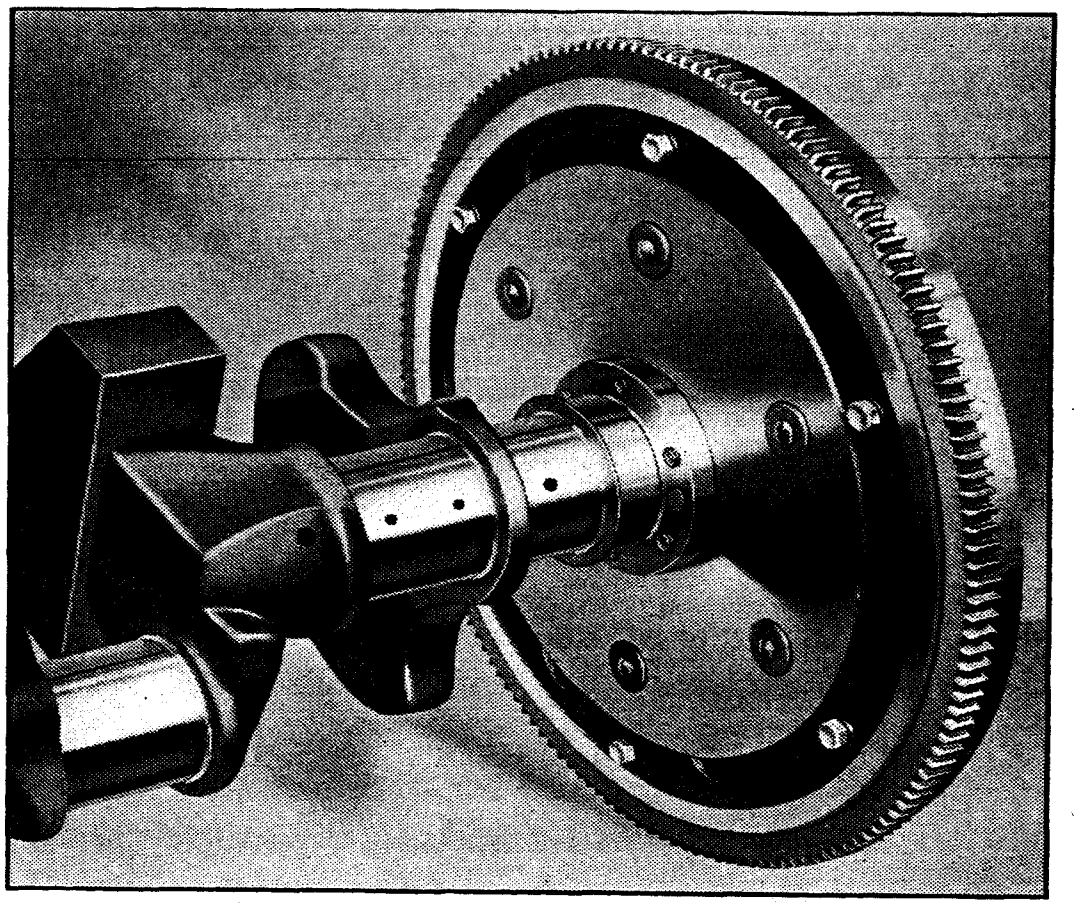
The extreme 27 inch shortness, possible only in V-type design, eliminates tendencies to whip or vibrate which cannot be avoided in long straight eight crankshafts.

Large diameter bearing journals and 1/4 inch overlap

of these journals and their crankpins are additional features of V-8 crankshaft rigidity. Use of six counterweights gives each crankshaft cheek its own counterweight which counterbalances each crankpin and connecting rod at the point of disturbance. This contributes to smoothness and balance.

Use of a light flywheel in the LaSalle V-8 engine eliminates any development of vibration at high speeds.

A new Syncro-Flex Flywheel has been developed by Cadillac engineers for all Cadillac V-8's. At certain critical speeds crankshafts in all engines tend to bend slightly upward and downward at the ends causing the flywheel to run with a wobbling motion creating vibra-



New Syncro-Flex Flywheel

tions. These vibrations are practically eliminated by the short, rigid V-8 crankshaft and would go unnoticed by an owner after driving a straight eight powered

automobile. For further Cadillac refinement, however, this new type of flywheel has been designed which results in a silky smoothness never previously achieved.

Instead of the usual rigid flywheel, the cast iron rim of the new design is attached to the crankshaft by a flexible steel disc. Damping plates press against both sides of this flexible disc. When the engine is run at speeds at which crankshaft bending occurs, the flexibility of the disc permits the cast iron flywheel rim to run in a true circle regardless of crankshaft deflection. If the crankshaft bends, however, the damping plates rub against the flexible disc, thus absorbing or damping the motion of the crankshaft just as the vibration of a violin string is damped if the finger is placed upon it.

All Cadillac V-8's also have a torsional vibration dampener on the crankshaft. While torsional or twisting vibrations are characteristic of crankshafts in all sixes, straight eights and V-12's, they are for all practical purposes eliminated by the short crankshafts of four cylinder and V-8 design engines. The dampener is used on Cadillac solely as an additional refinement to a powerful engine.

Main Bearings

Due to the inherent cancellation of inertia forces in 90° V-type design, main bearings have no work to do other than support the crankshaft and absorb combustion forces. Hence, only three are necessary. These are rigidly backed and babbitt-lined. They have very wide surface areas which retain oil longer than seven or nine small bearings. Three bearings are more easily aligned and more easily accessible.

A new positive rear main bearing oil seal is used in addition to the slinger-type seal. This design consists of an asbestos composition packing being held in the crankcase and main bearing cap by metal retainers.

Valve Mechanism

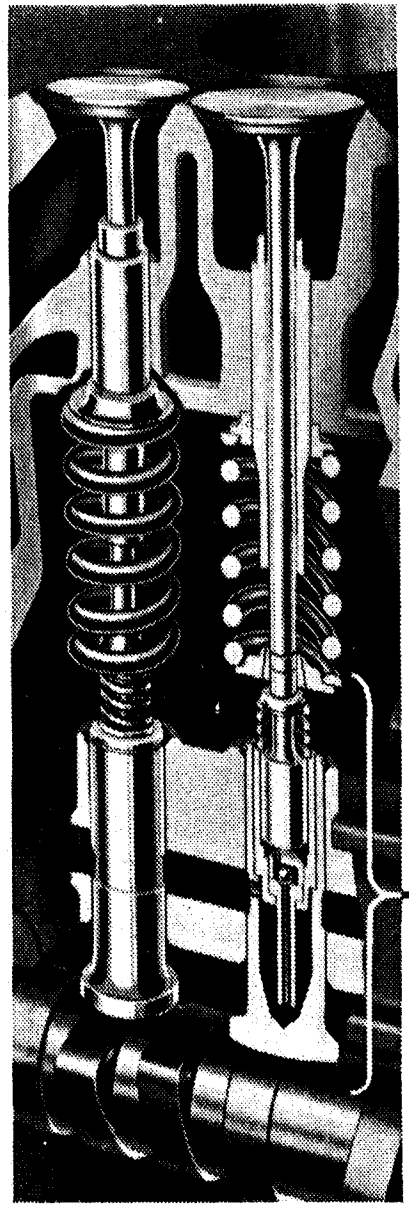
All Cadillac-built engines are of L-head design. Intake and exhaust valves are maintained in constant, accurate adjustment by hydraulic valve silencers or lash adjusters. These eliminate tappet noises frequent in all engines without automatic valve adjusters and particularly frequent in those of overhead valve design.

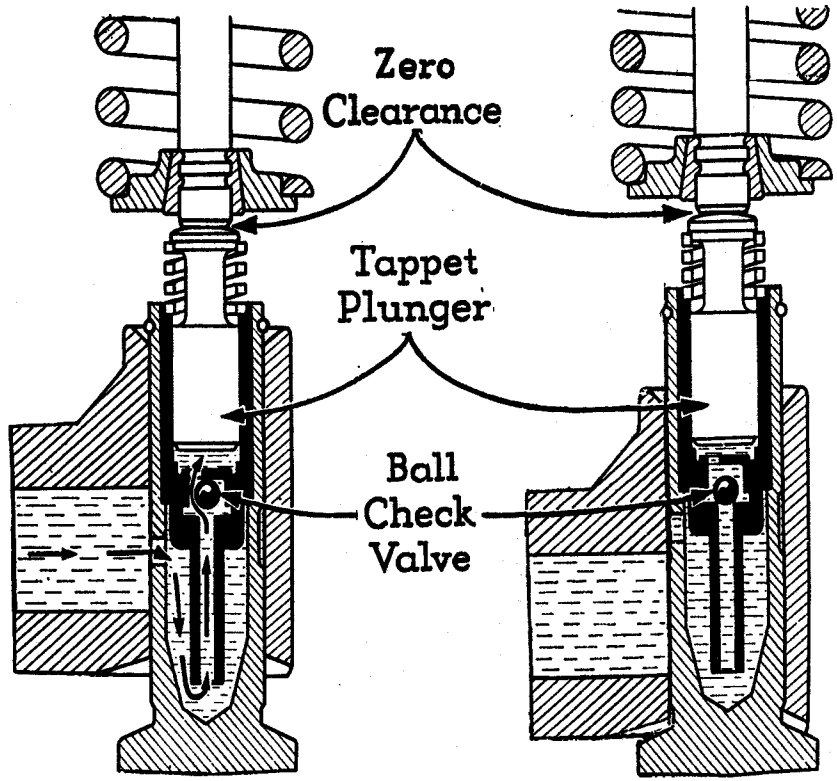
Service experience proves that 75 per cent of the cause for valve grinding is incorrect valve tappet clearance. This results in overheated valves and seats, causing leakage which decreases power output and increases fuel consumption. Valve silencers in all Cadillac-built engines eliminate this cause for service and operating expense by maintaining zero clearance under all conditions, thus prolonging valve life over other engines. With but one exception Cadillac and LaSalle are the only cars under $3,000 equipped with these owner-saving instruments.

Hydraulic valve silencers permit the use of mushroom-type followers and cam contours such that a fast opening and closing of valves is realized for greater power and performance.

These silencers are extremely costly instruments and have an accuracy of precision in manufacture equivalent to the world's finest and most expensive watches. Their operation is hydraulic, utilizing oil supplied under pressure by the engine's lubrication system. The silencers automatically keep all lost motion out of the complete valve mechanism under all conditions.

Valve seat inserts are unnecessary in Cadillac engines because of the especially hard cylinder block material. Inserts are required in other engines to resist the hammering action of valves in their seats when an inexpensive soft iron block material is used. Also, in the Cadillac design, heat from the valves escapes





When the valve is closed oil is forced by the engine's lubricating system in around the ball check valve. This oil pressure holds the tappet firmly against the valve stem. Clearance is zero and the valve is in accurate adjustment.

When the valve opens the ball check valve prevents oil from escaping again insuring zero clearance. A controlled oil bleed around the tappet plunger compensates for valve expansion maintaining accurate adjustment.

HYDRAULIC VALVE SILENCER OPERATION

directly to the cooling water whereas valve seat inserts retard heat dissipation.

An additional objection arising from the use of valve seat inserts is the reduction of valve openings which curbs power output and engine efficiency. Also warpage and distortion of valve seat within the block results from the unequal heat expansion and coefficients of the two metals. This causes incorrect valve fitting and wasted power.

Cadillac not only uses quality block material of high heat dissipating characteristics, but also positively and forcefully cools valve seats by direct water flow. Through the use of hydraulic valve silencers, constantly accurate valve adjustment is maintained which postpones the need for valve grinding far longer than the conventional valve mechanism with inserts.

Camshaft

The camshaft is a case-hardened steel forging driven by a silent chain from the crankshaft. Chain drive is far superior to any type or material of gears because it is stronger, quieter and greatly reduces wear. Hence, it is longer lived and more positive without servicing.

Bearings are steel-backed for strength and are lubricated directly through passages in the crankcase. Only three are necessary because of compact V-type design.

By using hydraulic valve silencers, Cadillac has designed special cam contours which permit fast opening and closing of valves and large openings, admitting great quantities of fuel mixture for high power output and acceleration.

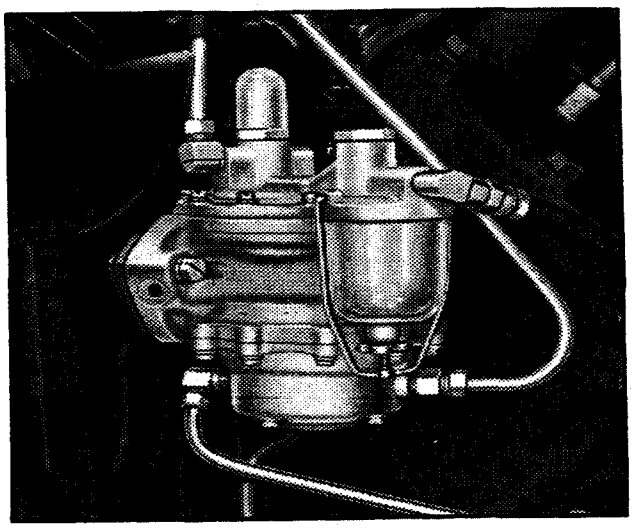
Integral with the camshaft at the rear is an accessory drive gear which drives the distributor and oil pump drive shafts.

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FUEL SYSTEM

Fuel Pump

Fuel is fed through air-cooled lines along the frame side bars to the fuel pump located in front of the engine directly behind the fan. This is the coolest spot under the hood, which eliminates vapor lock tendencies or supply shut off due to engine heat. From the pump fuel is fed under pressure to the carburetor.



Fan-Cooled Fuel Pump

The pump is of silent diaphragm construction. Water and all impurities are filtered and deposited in a detachable glass bowl.

Gasoline tank capacity is 22 gallons for LaSalle and Sixty, 24 gallons for the Sixty Special, and 26.5 gallons for the Cadillac V-8 and Fleetwood. These capacities afford an unusually wide cruising range for long distance touring.

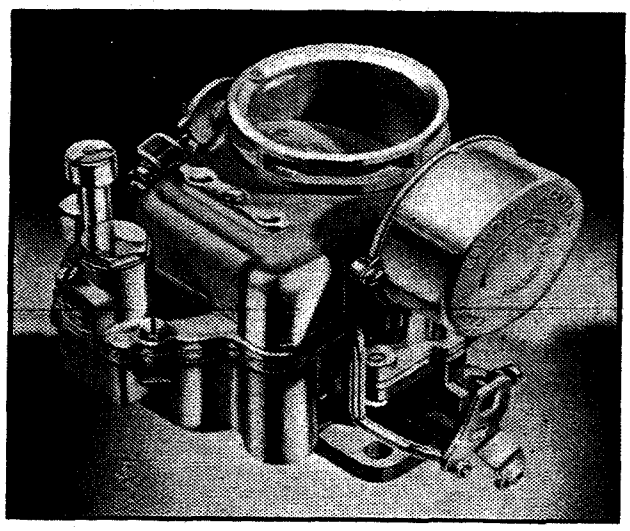
Carburetors

Dual downdraft carburetors are used on all Cadillacs and LaSalle. They are ideally located above the center of the engine V for positive equal distribution of fuel mixture by the intake manifold. The carburetors are designed to eliminate the tendency of gasoline in the carburetor to boil when the warm engine is stopped.

In conventional carburetors this boiling action creates gas bubbles which "percolate" upward through the fuel nozzle and discharge raw gasoline into the intake manifold which handicaps starting. Cadillac-LaSalle carburetors have a vent which permits any such gas bubbles to escape for easy starting.

The nozzle design for the new LaSalle carburetor has been improved by an accurate calibration of fuel and air mixture. This improves acceleration during part-throttle operation and likewise improves fuel economy.

Improved LaSalle Carburetor



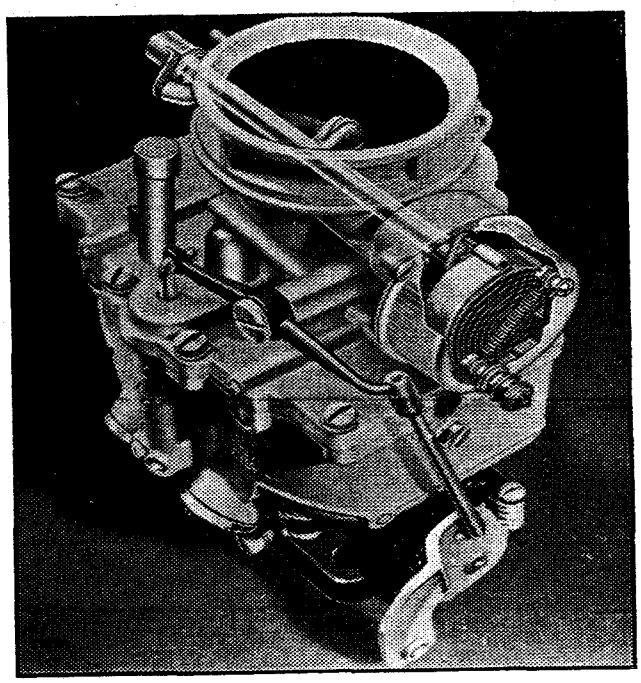
An additional refinement includes an air-cooled metering jet which improves hot starting.

The LaSalle carburetor also has Climatic Control. This is a perfected type of thermostatic choke which improves engine operation when cold by continuing choking action until the engine has reached its normal temperature.

The choke is electrically operated on all Cadillac V-8 engines. This mechanism consists of a small, fully encased wire coil close to the control thermostat. This begins to heat as soon as the ignition is turned on, expands the thermostat which in turn regulates the operation of the choke valve. The electric choke is

simple and positive in operation and eliminates oil dilution due to overchoking.

The Cadillac carburetor also has a new vacuum actuated economizer. This mechanism enriches the fuel mixture whenever power is required, even though the throttle is not fully open. Also, this improved design makes possible a leaner mixture for greater fuel economy.



Cadillac Carburetor and Electric Choke

Another feature of efficient Cadillac carburetion is the concentric design of the fuel chamber. This design eliminates tendencies toward vapor lock, common to many carburetors, by utilizing the cooling action caused by the evaporation of gasoline in the air stream passing down the carburetor throat. Fuel stored in the carburetor completely encircles the carburetor throat. By keeping this fuel constantly cool, rapid evaporation in the carburetor mixing chamber is avoided. Smoother, faster performance and more economical operation is attained in hot weather driving. The pronounced cooling effect resulting from evaporating gasoline may be easily demonstrated by placing a small amount of gasoline in the palm of the hand.

The concentric designed fuel chamber also makes carburetor efficiency entirely independent of the grade of the road or degree of acceleration or deceleration. Gasoline is permitted to rise at the rear of the fuel chamber when ascending a hill or accelerating, and to drop a corresponding amount at the front of the chamber without affecting the relative level of gasoline in the nozzle. Proper flow and correct mixture of fuel from the carburetor is maintained with consequent economy and smoothness.

Air Intake

An oil bath air cleaner filters all air before it enters the carburetor, insuring a pure fuel mixture. This elimination of impurities in the air prevents scoring of piston and cylinder walls.

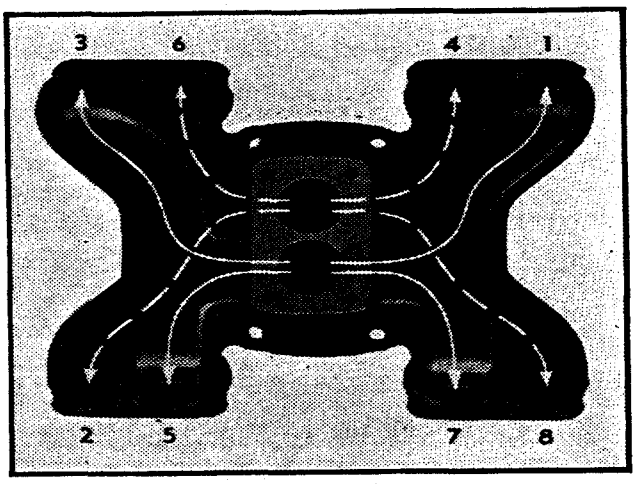
This type of cleaner is far more effective in handling large quantities of dirt than the conventional wire mesh type. Air rushing into the cleaner passes over a reservoir of oil creating an oil mist. Much of the dirt is held on the surface of the oil in the reservoir and the balance caught in a filtering element. All dirt adhering to the filter is washed into the reservoir by the oil mist. This keeps the filter clean and at maximum efficiency.

The air cleaner intake is at the forward part of the engine where it receives cool air directly from the fan. Cool air is heavier and has greater explosive qualities than hot, light air. The air intake is scientifically tuned to silence the sound of inrushing air to the carburetor.

Intake Manifold

Cadillac's uniquely designed intake manifolding insures equal fuel distribution to all cylinders. Two separate intake manifolds are cast into one unit. One manifold feeds the four cylinders numbered evenly in the firing

order, and the other supplies those with odd firing numbers. Since no two successively firing cylinders receive fuel from the same manifold, there is no chance of one cylinder starving another. Manifold distances from the centrally located carburetor are equal to all cylinders improving fuel distribution and reducing the possibility of condensation of gasoline in the manifold, such as occurs in the long straight eight manifolds.



Equalized Manifolds

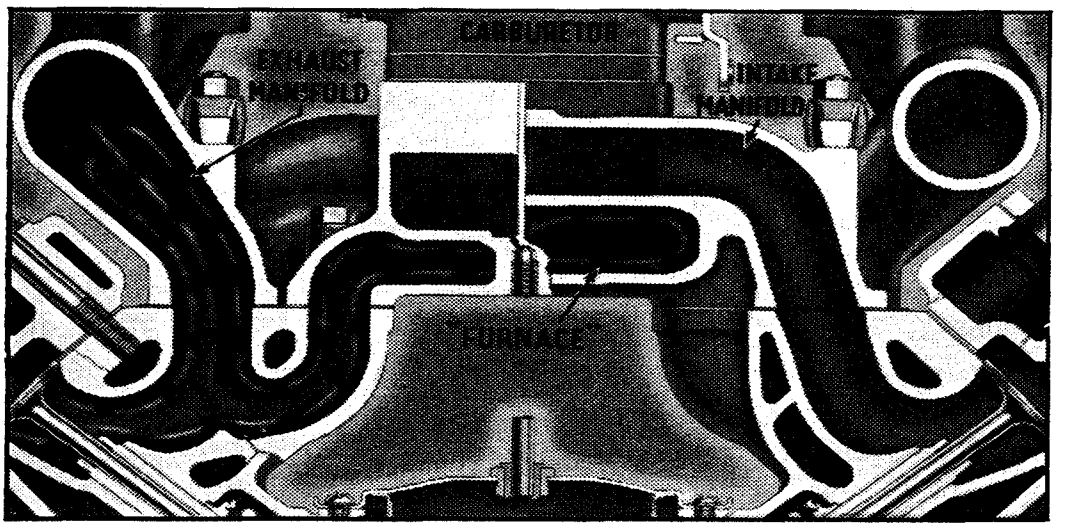
A further precaution for complete vaporization and fullest possible use of fuel is the "hot plate." Exhaust gases are led under the intake so that these hot gases are applied to the under side of the manifold. This direct heat immediately vaporizes any raw gasoline that may have dropped through to the manifold.

Exhaust Manifold

Each cylinder block has three exhaust ports. The end cylinders each have an individual port and the two center cylinders of each block are siamesed into a single port to supply heat to the hot plate in the intake manifold. Passages from the two center ports are so divided that part of the hot exhaust gases surge back and forth from block to block across the center of the engine, thus heating the intake manifolds. The balance,

with that from the end cylinders, goes immediately into the exhaust manifold.

The exhaust lead off is forward of the right hand cylinder block on LaSalle and Sixty engines. Exhaust



Cross Section of Intake and Exhaust Manifolds

piping system is on the right hand side of the chassis. On the Cadillac V-8 and Fleetwood the lead off is from the left side of the engine to accommodate the left side exhaust piping system on these models.

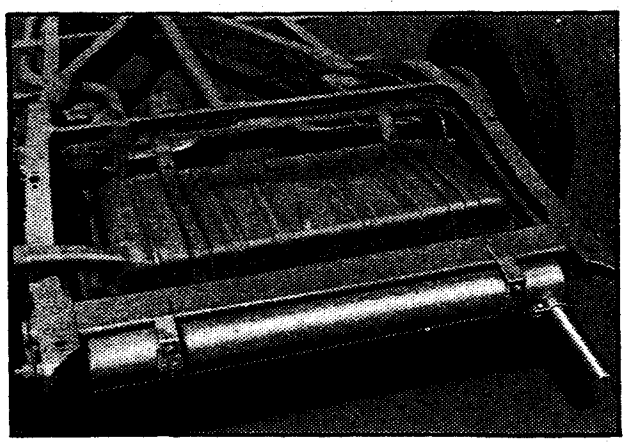
Mufflers

All mufflers and tail pipes are attached by rubber-insulated brackets which may expand endwise with heat. This prevents development of loose connections and forestalls transmission of noises and exhaust sounds to the body interior.

LaSalle and Cadillac Sixty have a new, larger straight flow muffler attached to the right hand frame side bar. Exhaust gases pass directly through the muffler which reduces back pressure. The Sixty has a separate expansion chamber placed in the exhaust pipe ahead of the muffler. The exhaust spreader is no longer necessary.

The muffler design for the Special, Custom V-8 and Fleetwood has also been improved by providing an

expansion chamber in the exhaust pipe. More complete absorption of sound is achieved. In order to maintain muffler size without reducing road clearance due to lower frames, the mufflers are mounted transversely across the rear of the chassis behind the gasoline tank.



New Transverse Muffler

With the right hand exhaust piping system and transverse muffler on the new Cadillac Sixty Special the exhaust tail pipe is at the left rear of the chassis. The exhaust piping system on Cadillac V-8 and Fleetwood passes down the left side of the chassis and connects with the left side of the transverse muffler, hence the tail pipe is on the right. To keep heat away from the body interior, the pipe is outside the frame sidebar for much of its length.

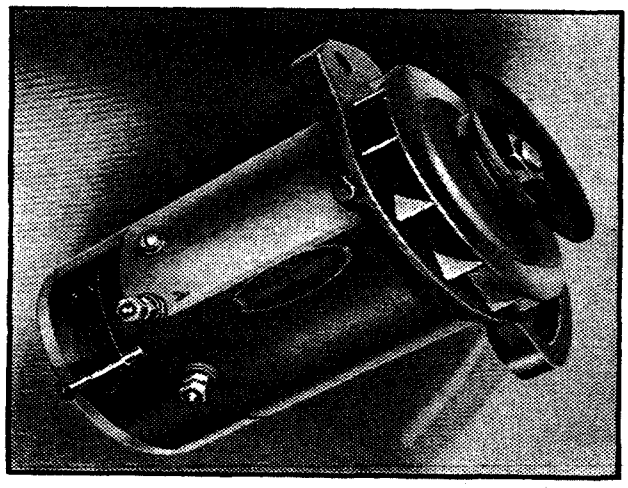
ELECTRICAL SYSTEM

Peak Load Generators

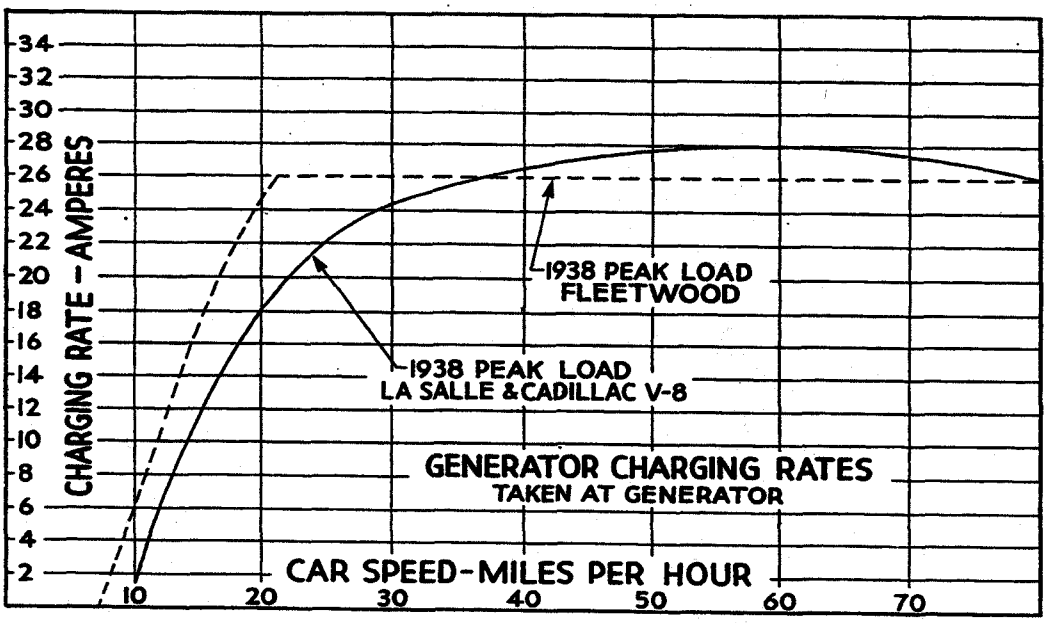
A voltage regulated generator on LaSalle, Cadillac Sixty and the V-8 provides peak battery charge to cope with numerous electrical drains from accessories. This high capacity generator automatically alters its output to suit the electrical load and battery condition. It is superior to voltage regulated generators of the so-called "step" type because the charging rate varies

throughout the speed range from maximum to minimum instead of in the usual steps of five amperes. This generator also has greater capacity than most voltage regulated generators, and, for the new Cadillac Sixty a greater low speed charging rate than in the 1937 Series 60. With battery at low state of charge and much electrical equipment in use, the generator will

Peak Load Generator



recharge the battery at the rate of about 26 amperes above a car speed of 20 miles per hour. When the



battery is fully charged and no accessories are in use, the generator automatically regulates the charge to a slow trickle to compensate for ignition drain. This

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keeps the battery at its peak load without danger of over-charging. This insures longer battery life.

The Fleetwood has a Peak Load Generator which has both the ability to regulate voltage and control current throughout the speed range. The current control maintains a constant high rate of 26 amperes at all speeds above 20 miles per hour if the battery is low and if a large number of electrical accessories are in use.

The generator on all models is accessibly located in the engine V directly behind the fan and is driven by a belt which also drives the water pump. It is air-cooled both as a result of its location and by its own fan built into the generator pulley which reduces its operating temperature and prolongs its life.

Solenoid Starter

The starter button on the instrument panel engages the solenoid which acts as a magnet to cause a positive engagement of the starter pinion with the flywheel before the starter itself operates. This action relieves the starter gears of all shock loads and provides long life with quiet operation.

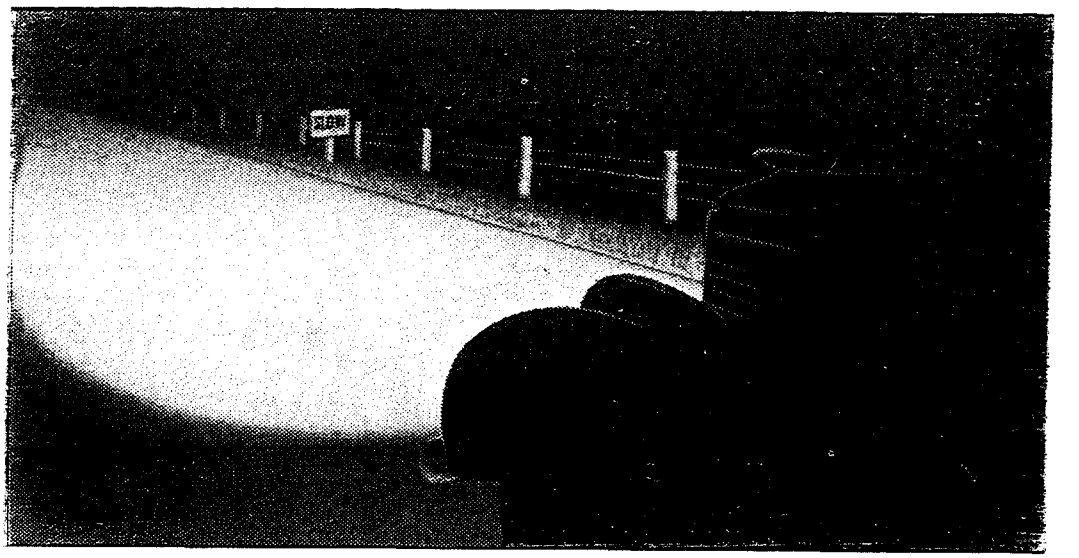
As a safety feature, starter engagement cannot be made unless the ignition switch is on.

Headlighting System

Cadillac was the first to develop the three-beam asymmetrical type of safe headlighting. Some makes of cars still retain the old-fashioned two-beam system.

Double filament bulbs are used which permit the right hand headlamp to throw its beams low and across the full width of the road and the left hand headlamp to illuminate the right hand road edge and ditch. This superior method of driving and passing beam design prevents glare to the oncoming driver yet assures adequate illumination.

The control switch is of the push-pull type and is located at the left of the instrument panel above the starter button. It pulls out into three positions, the first of which is for parking. If the instrument board control is in its second or mid-way position, a foot button on the floor to the left of the clutch pedal permits the driver to switch his lights from City Driving to



Safe, Non-glare Headlighting

Country Driving. If it is in the third or outermost position, the foot button will switch the lights from Country Driving to Country Passing. This four way use of the foot button is an additional and exclusive feature of Cadillacs and LaSalle.

To meet legal requirements, both headlamps use 32-32 candlepower bulbs.

Headlamp Beam Indicator

A light beam indicator on the speedometer dial tells the driver instantly in which of the three headlighting positions he is operating. This helps him avoid driving without lights or unintentionally blinding the oncoming driver. In parking the driver is less apt to leave the City Driving Lights on instead of the lower candle-

power Parking Lights. Headlamp beam indication to three positions is another exclusive feature of LaSalle in its class.

Circuit Breaker

A circuit breaker is used in the electrical system to prevent damage to the system from any current overload. Should this occur, the heat generated causes the unit to break the circuit. As soon as the temperature of the unit returns to normal the unit closes itself automatically. Fuses are eliminated.

Horns

Two trumpet type horns are mounted on laminated springs to avoid transmission of vibration to the body. They are now located behind the grille and in front of the radiator core, vertically with trumpet downward. This gives the engine compartment a neater appearance, and improves engine accessibility.

Ignition System

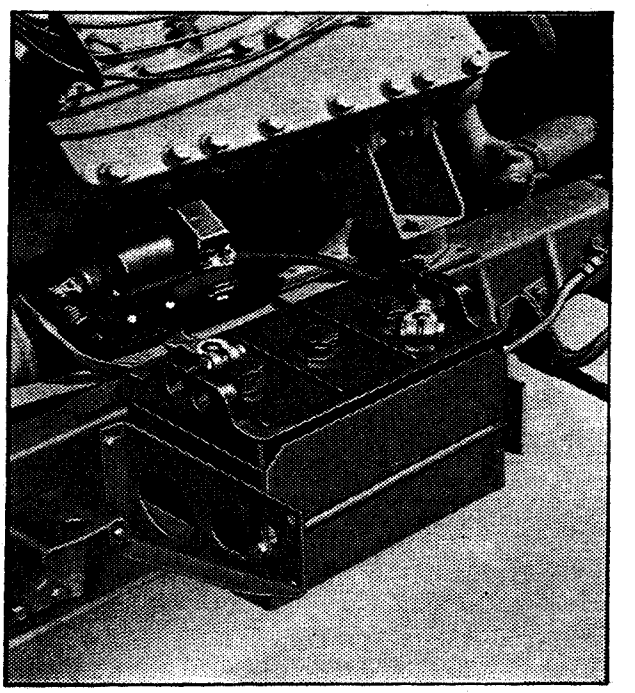
The ignition system is designed to provide an uninterrupted flow of current through simplicity of construction and thorough weatherproofing. The coil is completely enclosed and of the iron-clad type. A condenser is mounted inside the distributor to protect the contact points from burning and to assist in building up a high secondary voltage. The distributor and timer are mounted in one unit of a special waterproof design to protect the terminals from moisture. The distributor is driven directly from the camshaft. Improved high tension wiring gives the new engines a neater appearance.

Battery

Batteries in all Cadillac V-8's and LaSalle are now placed under the hood on the right side just in front of the dash and above the starting motor. This greatly

improves accessibility for servicing. The battery case is of improved, more durable construction.

A 17 plate battery of 110 ampere hour capacity is used on LaSalle, Sixty and the V-8. The Fleetwood



Underhood Battery Location

has an 130 ampere hour battery. Battery terminals are self-opening, reinforced by a steel insert which reduces corrosion and prevents breakage.

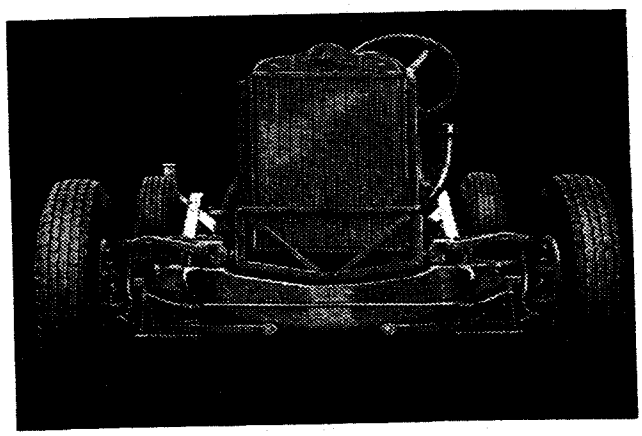
COOLING SYSTEM

Radiator Core

Engine cooling provides an unusually large reserve to meet abnormal requirements. The Cadillac Sixty Special radiator core is lower and wider so that more of the radiator may be efficiently covered by the fan. Also the new, wider radiator grille improves air distribution over the radiator core face. LaSalle, Sixty, Cadillac Custom V-8 and Fleetwood have much larger radiator grille openings which improves cooling.

The core is of copper cellular design with wide vertical passages and smooth walls which greatly minimize possibilities of stoppage.

Thermostatically controlled radiator shutters are used on all Cadillacs and are rarely used on cars in LaSalle's class. They provide more nearly uniform



Thermostatic Radiator Shutters

underhood temperature, regardless of weather conditions for more efficient carburetion and economy than can be obtained with the conventional circulation type thermostat. With this latter type of control, water in the engine is maintained at a high temperature by circulation of the water through the engine alone, and not through the radiator. The flow of air through the radiator, however, is unrestricted. This wide variance between engine and underhood air temperatures is detrimental to carburetion, frequently causing carburetor frosting in winter and also causing condensation of moisture on the walls of the crankcase. Sludge forms from this condensation, dilutes engine oil and may score and wear vital engine parts.

Radiator shutters eliminate all of these inherent weaknesses of the circulation thermostat and aid the efficiency of Cadillac-LaSalle's positive crankcase ventilating system.

Filler Cap

The radiator filler cap has a built-in pressure valve which reduces loss of water or anti-freeze caused by boiling. The boiling liquid cannot reach the radiator

overflow pipe until it passes through the vent valve with a pressure greater than three pounds per square inch. Hence, the temperature at which the liquid may boil off is higher than its normal boiling point. Boiling-over action is thus forestalled completely or delayed.

The filler cap has a bayonet type fastener which eliminates danger of pressure overflow when the cap is removed. Before the cap can be completely turned to removal position, any pressure built up from over-heating is allowed to escape automatically through a vent without danger of spouting.

Water Pump

The impeller type water pump is easily accessible by being built into the front of the right hand cylinder block. An automatic packing adjustment is provided whereby the packing is held by a regulating spring and the hydraulic pressure of the lubricating grease. This prevents leakage from faulty packing adjustment and eliminates service expense.

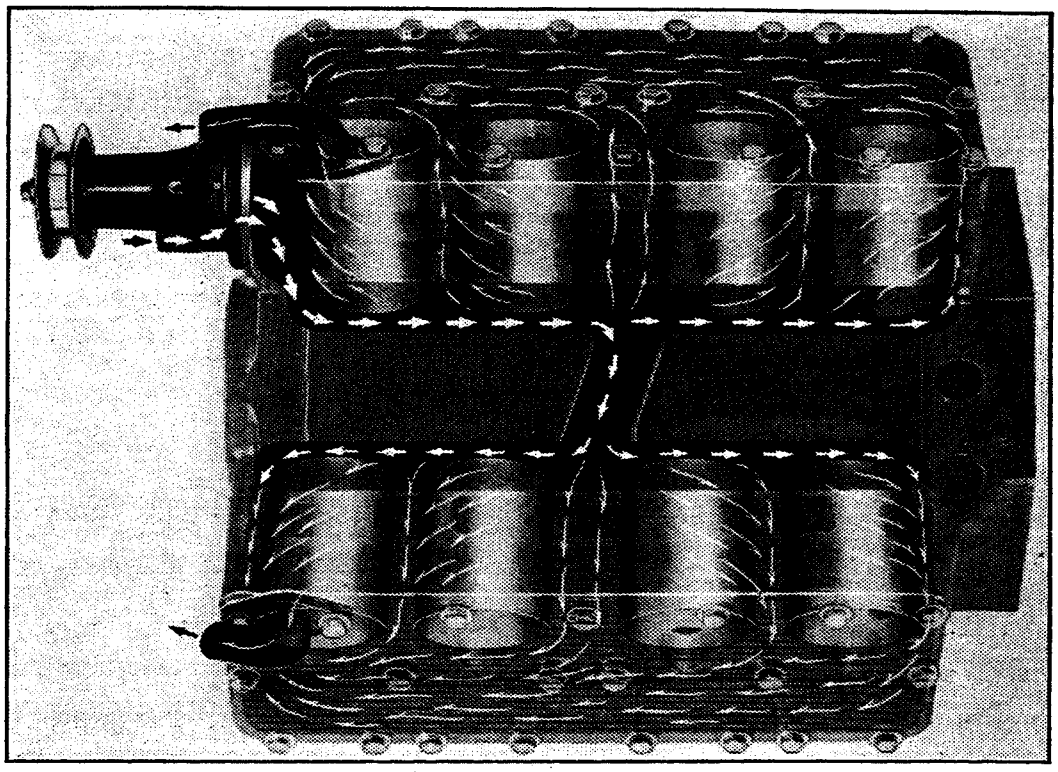
Water Circulating System

Cadillac V-type design lends itself to more simple, uniform cooling than is possible in straight eight engines due to their much longer cylinder blocks.

Water is drawn through a short hose connection from the bottom of the radiator tank to the pump. From here it is forced under high pressure directly into the right hand cylinder block. Half of the water passes through the right hand block, then upward to the cylinder head. The other half is forced through a center passage in the engine to the left hand block. This simplified system requires only three short hose connections.

Water pressure, provided by the size and location of holes in the cylinder block, directly cools valve seats.

Additional piping, common in other engines, is eliminated. Because the Cadillac-designed cooling system



Complete and Uniform Water Circulating System

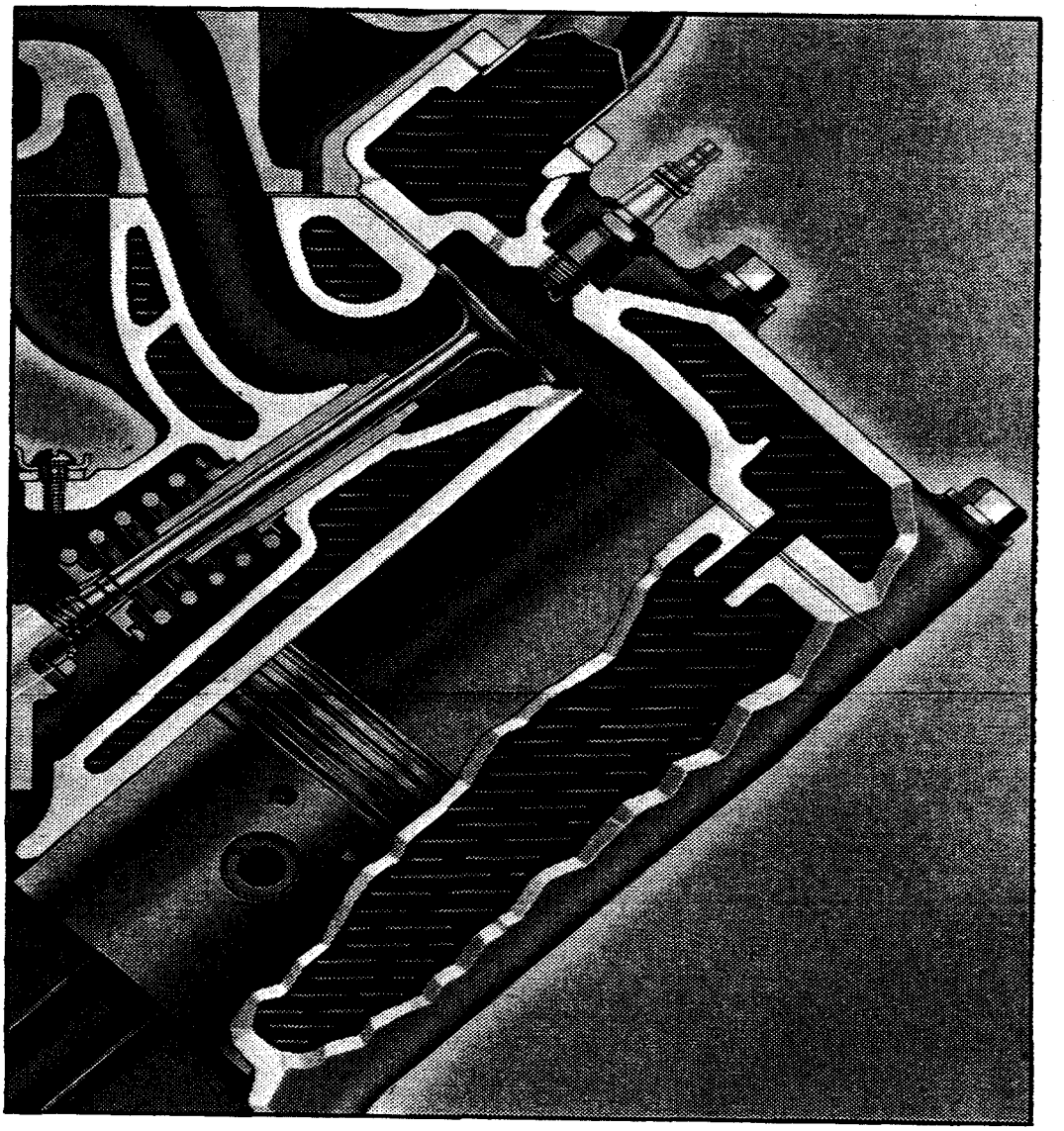
promotes thorough cooling of valve seats, valve seat inserts are unnecessary.

Full Length Water Jackets

All metals expand with heat and change their shape when heated unevenly. Full length water jackets provide uniform cooling over the entire length of the cylinder walls and, therefore, insure an equal expansion of the cylinder barrels in all directions under severe weather conditions. Cylinders remain true and full compression is retained after years of hard usage.

A second important advantage of full length water jackets is the reduction in engine oil temperature as a

result of the engine's cooler operation. Lubrication qualities of the oil are retained much longer.



Full Length Water Jackets

Fan

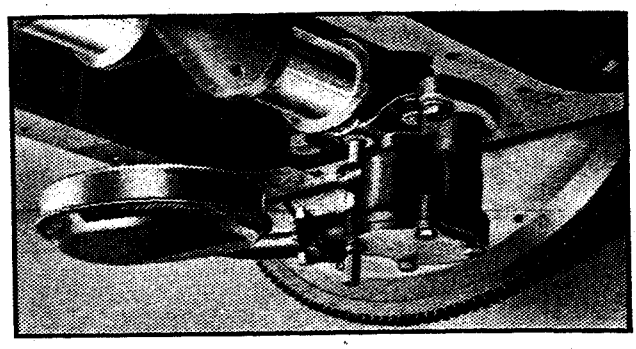
The LaSalle and Sixty fans have four and the larger Cadillac fans six blades. They rotate on a permanently sealed double row ball bearing which never requires lubrication. A single pulley and belt drive the fan only, the water pump and generator being driven by a second belt and pulley. This arrangement increases belt life and, in event of breakage, throws only one of the engine cooling units out of operation.

LUBRICATION SYSTEM

Engine Lubrication

Full pressure lubrication provides oil positively to every moving part of the engine, including wrist pins. Oil is in sufficient quantity to be of material assistance in cooling bearings and prolonging their life. Oil travels through smooth drilled passages in the crankcase eliminating the conventional oil lines which might become broken. The only piping in the entire engine is to the hydraulic valve silencers and to the oil pressure gauge on the instrument panel.

Oil Pump and Intake



A large gear type pump is located at the rear of the engine and to the left of the rear main bearing. Oil is taken into the pump through a screened float intake which is shaped like an inverted cup open at the bottom. This intake floats on the surface and draws only the clean oil. As the oil level rises and falls, the float moves up and down with it. The opening is so large that even though the oil is thick and cold it is drawn into the pump.

A regulator built into the body of the pump maintains correct pressure. From the pump, oil is delivered first to the three main bearings and the three camshaft bearings. From the rear camshaft bearing, oil continues upward to the bearing supporting the distributor and oil pump drive shaft. An oil passage from the front camshaft bearing likewise carries oil to the timing

chain. Oil is conducted from the center camshaft bearing to the hydraulic valve silencers, and thence to the cam and valve followers.

Oil passages are drilled in the crankshaft leading oil from each of the main bearings to the adjacent crankpins. Part of this oil lubricates the connecting rod bearings, part flows up the rifle drilled connecting rods to the wrist pins and part is squirted through small holes in the connecting rod big ends for cross lubrication of the cylinder bores.

Refinements in the lubrication system for 1938 include a removal of the oil pan drain to the left side of the crankcase. This improves accessibility and road clearance. A flexible oil level dip stick supersedes the rigid stick, making oil level inspection more convenient. Repeated experiments have shown no advantage in the use of an oil filter for the hydraulic valve silencer supply in the 1938 engines, consequently this unit has been eliminated.

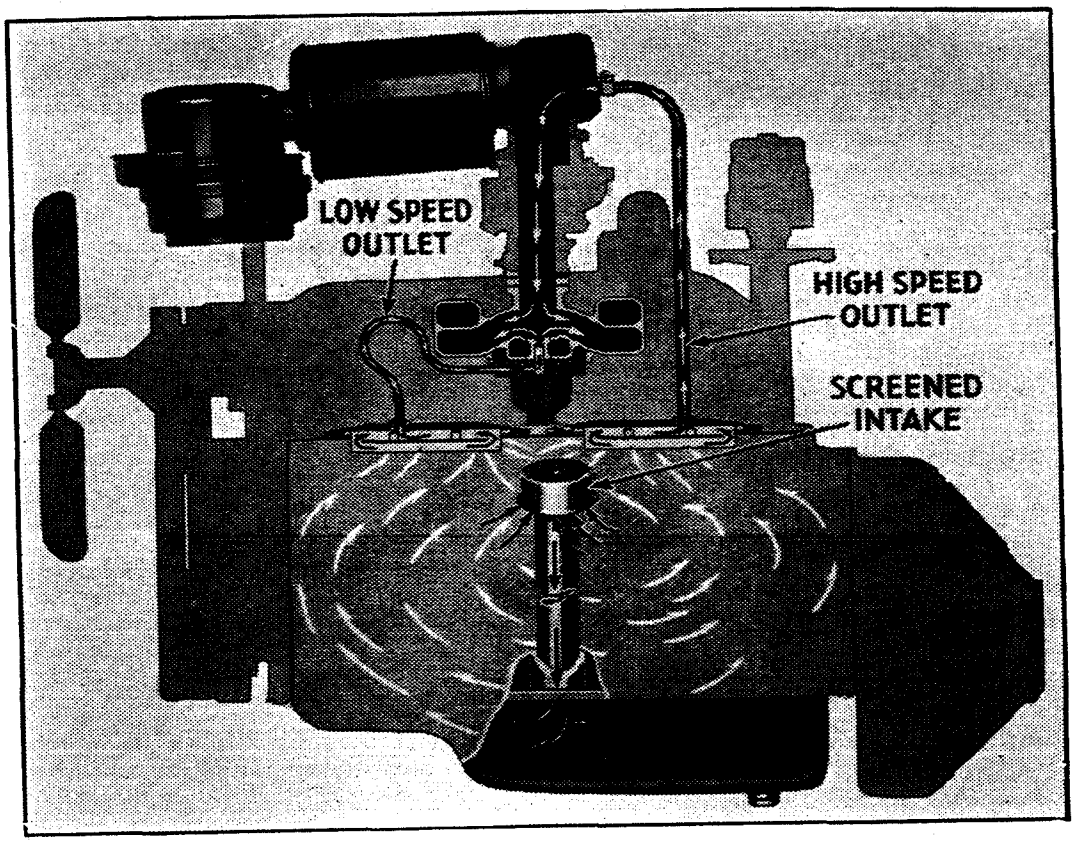
Crankcase Ventilation

Cadillac engineers pioneered and developed crankcase ventilation, and introduced it to the industry in 1925. The engine suction type now employed is the most thoroughly efficient method ever used and is exclusive to Cadillac and LaSalle. Damaging unburned fuel vapors and moisture, which would otherwise collect in the crankcase, score cylinder walls and bearing surfaces, and dilute lubricating quality of the oil, are positively sucked out regardless of car speed.

Air enters through a cleaner in the top of the oil level measuring stick, is filtered then passes through the crankcase, picking up moisture and impurities. These are discharged from the crankcase by one of two openings, depending upon the engine speed. This im-

portant Cadillac feature is not found in the crankcase ventilation of any other car.

At high speeds vapors are discharged through a pipe located in the rear of the air cleaner where the velocity of inrushing air to the carburetor provides suction.

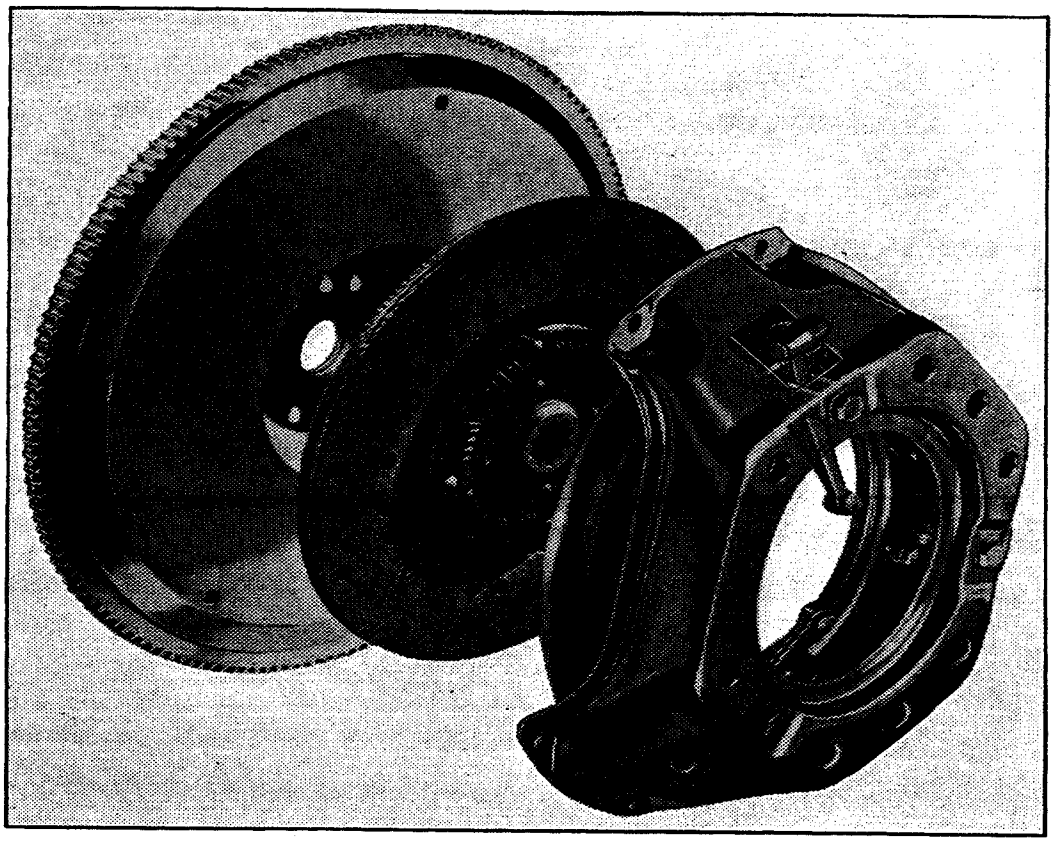


Crankcase Ventilating System

At low speeds vapors are discharged through a pipe in the intake manifold which has a high amount of suction due to the strong vacuum at low engine speeds. This vacuum also serves to minimize any danger of oil leak in the crankcase.

CLUTCH

All series of Cadillac and LaSalle use the semi-centrifugal single dry plate type of clutch. The LaSalle clutch is 10½ inches in diameter or 107 square inches in area; for Cadillac it is 11 inches in diameter and 124 square inches in area.



Semi-Centrifugal Clutch

The large plate has woven facings for long, smooth functioning clutch life. Light pedal pressure is achieved by the design and placement of three small centrifugal weights. These increase the clutch spring pressure as the car speed increases to take care of the increasing engine torque, yet permit the clutch to be held easily disengaged at low speeds. A waved metal ring between the facings acts as a cushion to provide smooth engagement and eliminate chatter. Eight coil spring vibration dampeners built into the hub insulate the drive line from engine pulsations.

The clutch throwout bearing has a sealed-in lubricant which need not require attention for the life of the car although a lubricating inlet is provided as an additional margin of safety in event of extremely severe usage.

Extremely rigid cover plates and air ventilation of the driven plates promote long life.

SYNCROMATIC TRANSMISSION CONTROL

The transmission control lever is now mounted upon the steering column and projects below the right side of the steering wheel. This advanced design provides three worthwhile improvements for riding and driving comfort:

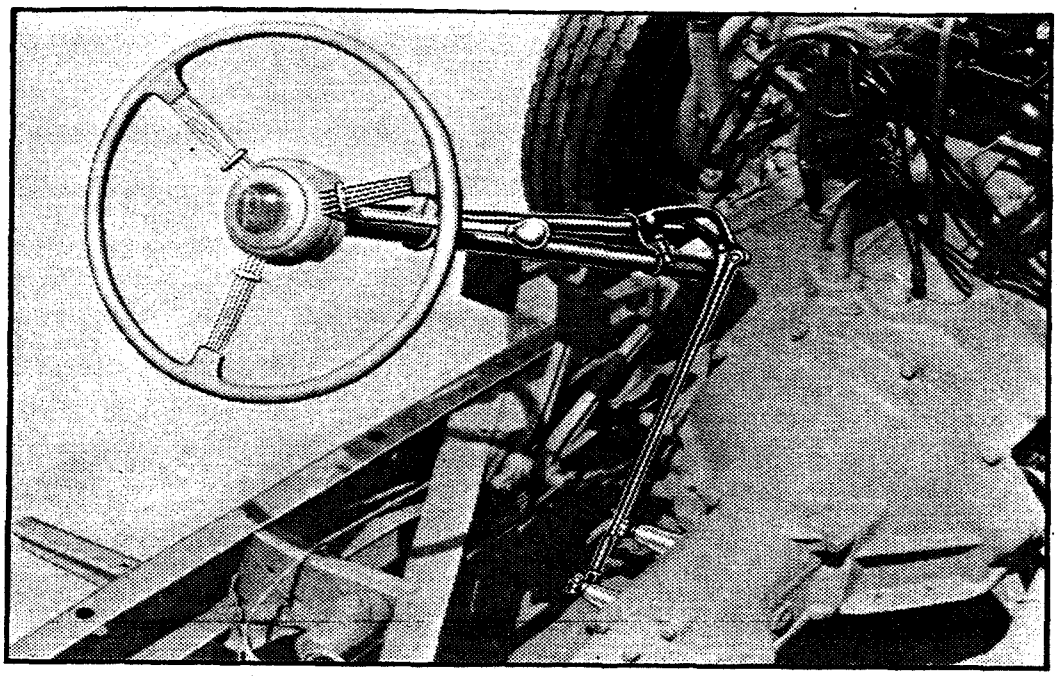
1. The front floor is now without any obstruction since the hand brake lever is below the left side of the instrument panel. Driver and passengers may enter the car easily from either side. The wide front seat may be fully utilized to carry three passengers most comfortably.

2. There is a definite reduction in transmission gear and other noises audible in the body. The conventional control lever acts as a direct connection between the chassis and the body interior, telegraphing noises into the interior.

3. The driver may shift far more easily and quickly and with more surety of handling the car since every driving control is within his immediate reach.

The driver shifts in exactly the same manner to which he has always been accustomed. There is no

trick manipulation of the clutch or accelerator pedal. Furthermore, the owner pays nothing extra for the new Syncromatic shift. It is standard on all series of Cadillacs and LaSalle.

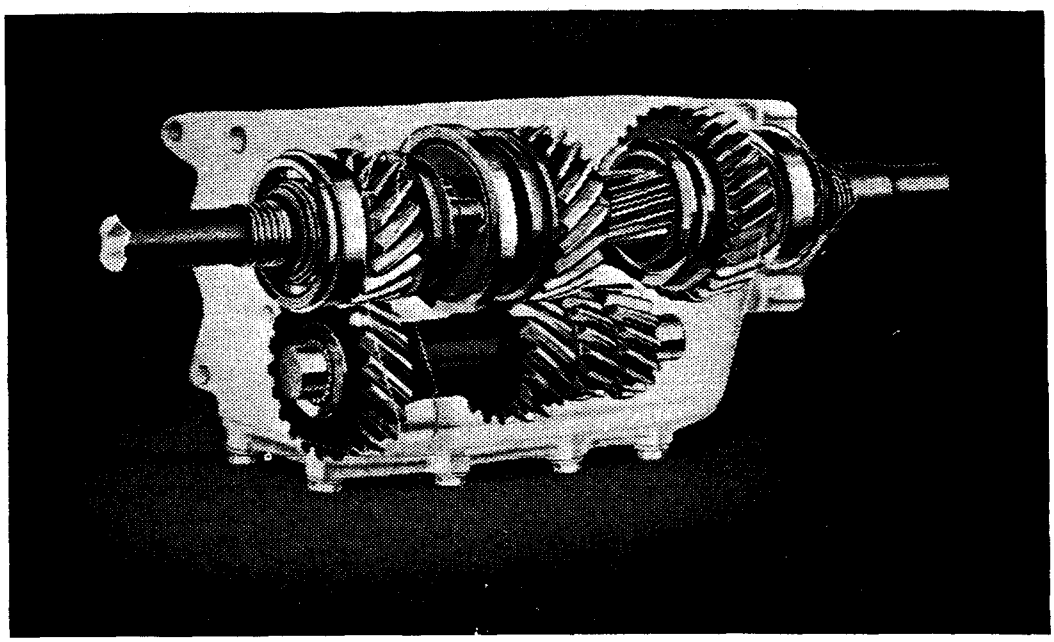


Syncromatic Shift Control

The construction of the new control system is very simple. There are no numerous parts or complicated devices to wear and get out of order. The short transmission lever projects to the right from a housing just below the steering wheel hub, the lever ball end being convenient to the driver's right hand below and somewhat to the right of the steering wheel rim. Within the housing the lever is pivoted to the left side of the steering column. From the control lever pivot two torsion shafts extend down the left side of the column and nearly parallel to it. They are small in diameter and inconspicuous. Below the floor boards each of the two shafts carries a lever from which a shifter rod passes to the transmission gear case. One shifter rod operates high and second gear, and the other low and reverse gears.

New, More Durable Transmission

Engineering experience and testing with the 1937 transmission proved it to have five to six times the wearing life of other transmissions. For 1938, a new and even more durable transmission has been designed for the new Sixteen and is used in all Cadillac and LaSalle V-8's.



New, More Durable Syncro-Mesh Transmission

Countershaft diameter has been increased, adding 25 per cent to strength and rigidity and improving gear tooth contact under conditions of extreme loads. Twenty-eight roller bearings are used on each end of the countershaft. The second speed countershaft gear is wider, increasing its durability by 200 per cent. The clutch connection shaft has greater diameter and employs a new cageless type roller bearing which increases this shaft's torque carrying capacity by 48 per cent.

All transmission gears, including reverse, are helically cut for silent operation and then finished with an expensive lapping process. All gears are carefully

checked individually and then matched into sets by hand. The expert hand, eye and ear of long trained craftsmen check for perfect running quietness in a soundproof room.

The low and reverse gear are of the sliding type mounted on helical splines. Second speed gears are in constant mesh for silence. There are no shifter shafts since the new shift control operates through levers. Friction is thereby greatly reduced and shifting is much easier. On the bottom of the transmission housing is a removable plate for service accessibility.

The pin type synchronizer, which made shifting so easy and clashless last year, is continued, and has even greater effectiveness by increasing the gripping power of the drums. The drums are now of tough, strong, corrosion-resisting aluminum alloy.

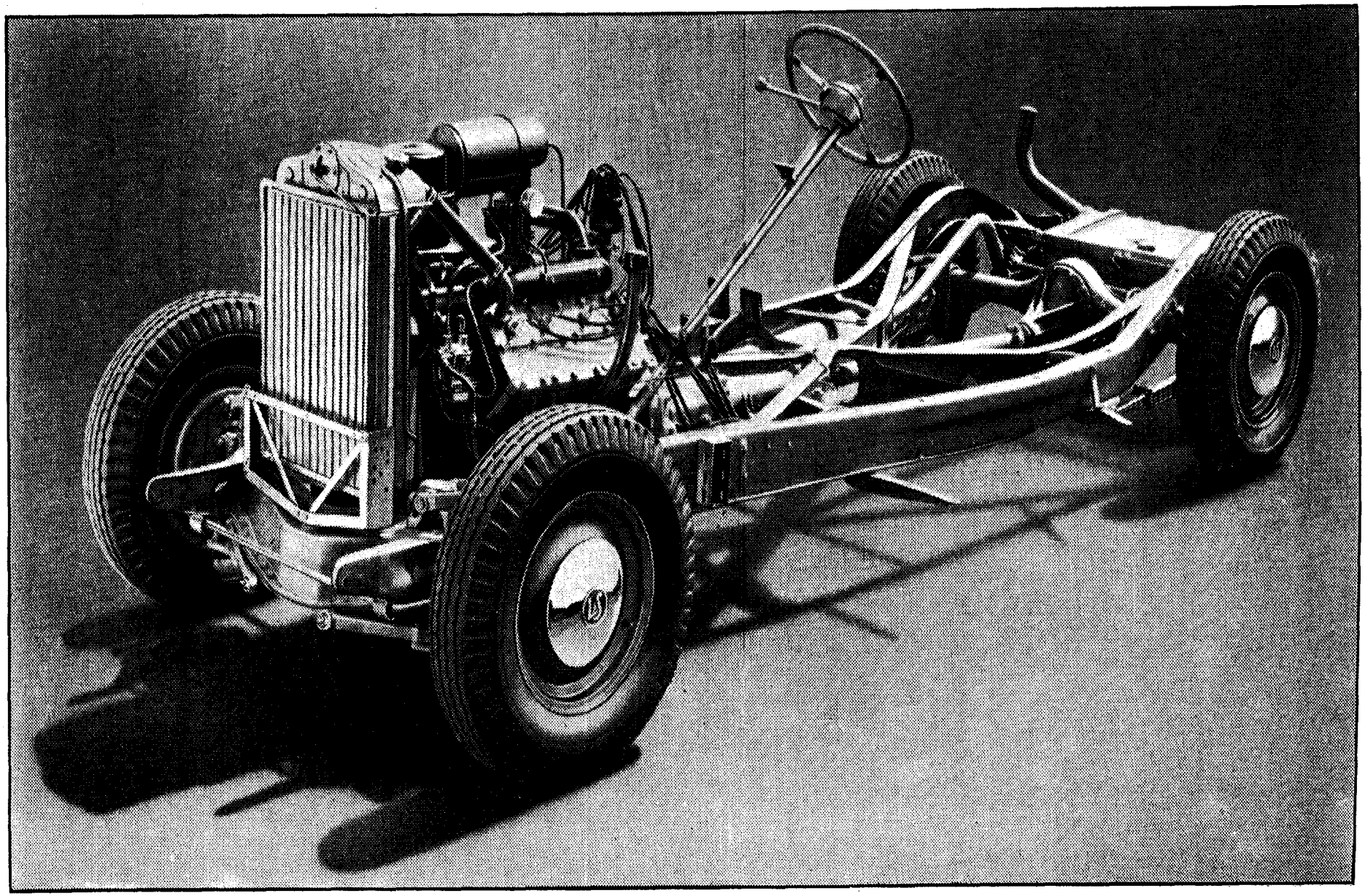
Overdrives, fourth speed gears or other automatic gearing devices, used on some cars, are necessary with small engines to improve economy and life. The extra cost owners must pay for these devices offsets any small improvement in economy claimed for them.

Cadillac, however, prefers to use large engines sufficiently powerful to pull the car under all conditions, and runs these engines slowly by means of low standard rear axle ratios. Performance, as well as long life and economy, is therefore secured. Transmission complexity is avoided.

Speedometer

The speedometer drive gear is placed at the rear of the transmission and is driven by a spiral gear from the transmission shaft. This gives a quiet operating gear automatically lubricated at all times.

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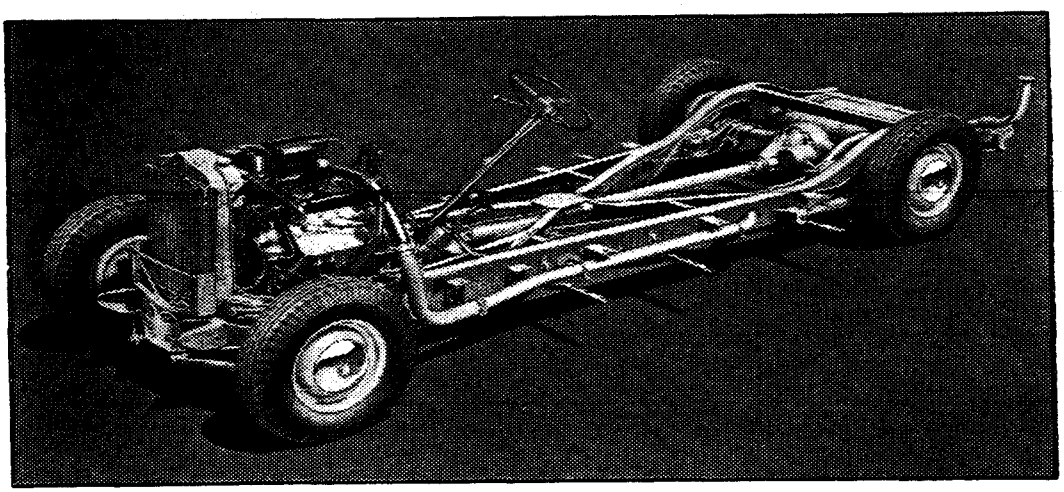
The New LaSalle Chassis

V-EIGHT CHASSIS

Chassis for all new Cadillacs and LaSalle have been redesigned or improved for 1938 in accordance with Cadillac policy to provide most progressive engineering, durability and comfort.

The LaSalle and Sixty chassis have been refined through improvements in frame design, springing and stronger hypoid rear axle. Wheelbase is 124 inches.

Cadillac Sixty Special has a new double drop frame in order to achieve extremely low lines on this new model. Rear axle and springs have also been refined. Wheelbase has been increased to 127 inches.



New, Sturdier Fleetwood Chassis

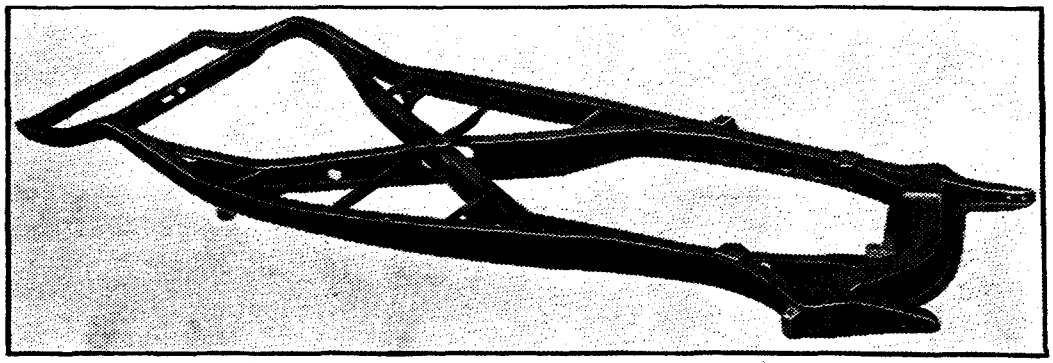
The 132 and 141 inch wheelbase chassis employed on Cadillac V-8 and Cadillac Fleetwood respectively are completely new, featuring stiffer frames, improved cross link rear stabilizers and new hypoid rear axles. These are the most advanced chassis employed on any fine car for 1938.

Frames

LaSalle and Sixty: The frame is the dual X-type with rigid I-beam section members. Frame depth is $8\frac{11}{16}$ inches; thickness $\frac{1}{8}$ inch; flange $2\frac{3}{8}$ inches. The

Front X-members are riveted to the frame side bars and are additionally reinforced to form a wide box section for stiffness. Rear arms are tapered to provide uniform strength throughout that is not weakened by the propeller shaft passage. Plates reinforce the center junction point of the X-members at both top and bottom for additional strength.

The unusually heavy front cross member is also reinforced by a steel plate at the bottom to which is



Rigid X, I-Beam LaSalle Frame

bolted the brackets supporting the strong cross rods for rigid attachment of the lower wishbone arms of the Knee Action assembly. The cross member also supports the front end mounting which consists of securing the front fender braces and radiator casing to a cradle in front of and attached to the radiator core. This construction provides front end rigidity, eliminates vibration and also affords radiator protection in event of accident.

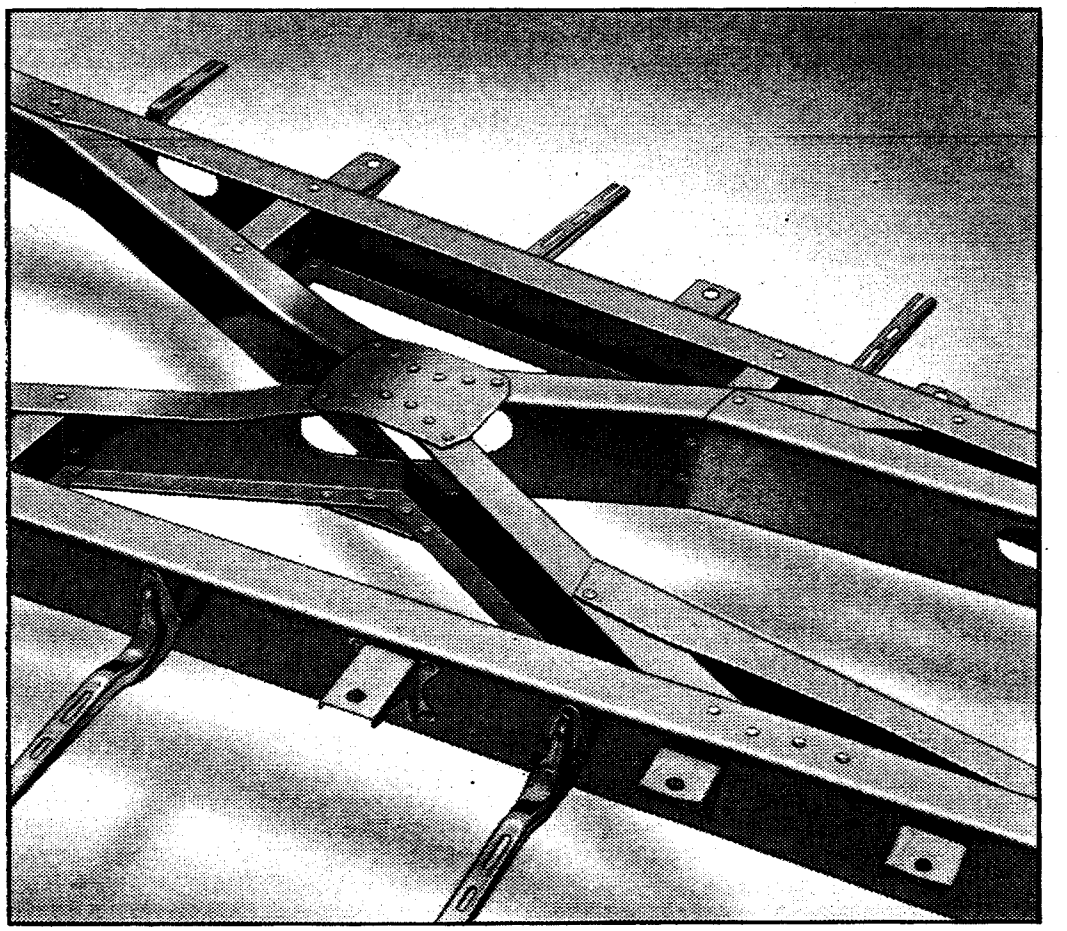
The front end of the frame has been tipped down to a horizontal position which centers the caster adjustment of the front wheels for easier, quicker servicing.

Cadillac Sixty Special: This model has an entirely new frame to accommodate increased wheelbase and increased body length. Striking, ground-gripping appearance has been achieved by lowering the frame three inches. This has been accomplished by use of a double

frame design with kick-up over the rear axle and at the front.

Frame stiffness has been increased 30% primarily from the use of straight side bars. X-member arms are of I-beam construction. The arms are tapered at the rear even more than before. An additional factor in increased rigidity is a new box reinforcement which extends from the rear arms to the cross member in front of the gasoline tank.

Cadillac V-8 and Fleetwood: Frames for these cars have likewise been strengthened 10% through the use of straight side bars. The side bar front reinforce-



V-8 and Fleetwood Frame Bracing and Center Junction

ment which extends forward from each X-member and makes a box section with the side bar, is carried further

drop back to its point of attachment to each of the X-member arms, thus strengthening the junction of X-member and frame side bar. The X-member central junction now has the exceptionally great depth of $9\frac{13}{16}$ inches. Heavy "wolfhides" are used at the center junction on frames for convertible type cars, for additional rigidity.

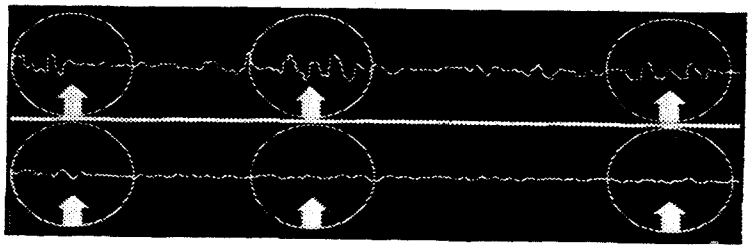
Knee Action

Most important contributing factor to Cadillac-LaSalle riding comfort is Knee Action, pioneered by Cadillac engineers and introduced in 1934.

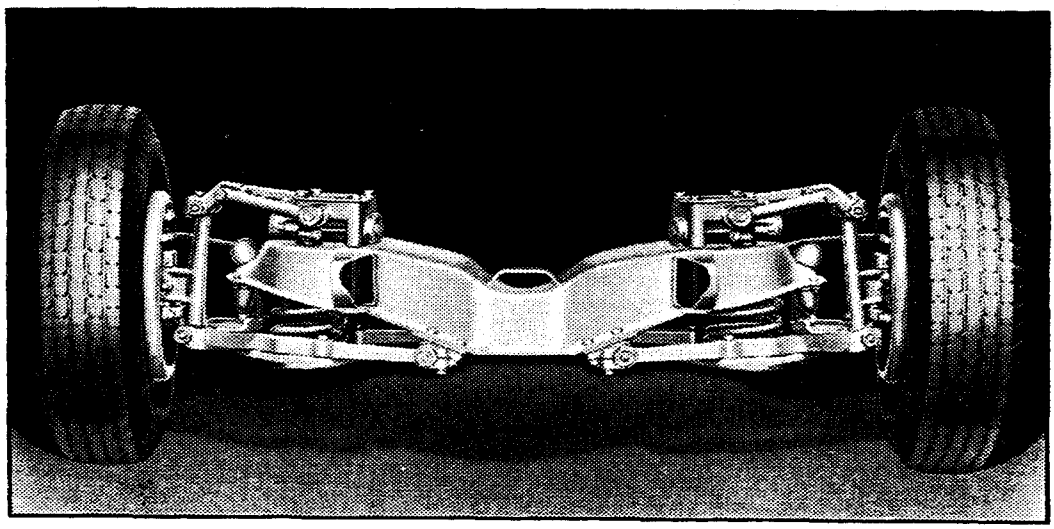
The reason for a more complete absorption of road shocks and a greater ease of handling is due in Knee Action to adherence to fundamental principles regarding the proper springing of the car's weight. The ideal is a close approximation of spring rates or of the springs' flexing ability. Front should be slightly softer than the rear springs. Then, as the car moves over irregularities in the road's surface, spring action from front to rear of the car becomes uniform, shock is absorbed by the springs and passengers within the car are not conscious of any disturbances. This is the important reason for the unequalled Cadillac-LaSalle ride.

Other cars with conventional front axle and leaf type front springs, and those which employ independent front suspension without attempting to balance relative motion between front and rear springs, give a definite pitching and tossing ride for rear seat passengers. There is no uniformity between the upward and downward movement of the front suspension and the rear wheels. The rideograph records visibly on paper any disturbance

within the car as it is driven over the road. Its results are illustrated below.



Some manufacturers have tried to conform to the fundamental Knee Action principle by softening their front semi-elliptic or transverse springs. In order to achieve sufficient softness they have either reduced the number of leaves to the point where the spring would break easily or they have lengthened the spring, which increases front axle movement and interferes with steering geometry. Another method uses a transverse spring with lubricant in the center core of the spring which has proved far too inflexible with the result that riding qualities are noticeably poor. Still others have changed the positions of the seats relative to the wheels,



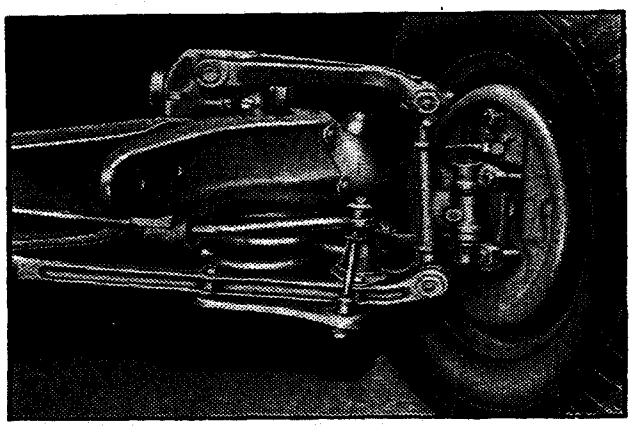
V-8 and Fleetwood Knee Action

but this is only a slight modification of the conventional axle and leaf spring design. From every practical design

standpoint and in view of the results obtained there is no equal to Cadillac-designed Knee Action and to the Cadillac-LaSalle ride.

In Cadillac Knee Action each front wheel is fastened directly to the frame by two heavy forged forked arms which hold the wheels in perfect alignment. This construction is far superior to the conventional axle suspension in that the movement of either wheel is not transferred to the steering system. This eliminates car wander and shimmy. Steering is much less affected in event of tire blowout at high speeds. Caster angle is not affected by brake or spring action.

The upper forked arms are attached to and operate the shock absorbers which dampen excessive spring action. The lower arms are fastened with shaft supports to the frame, an inherently rigid method of mounting.



LaSalle and Sixty Knee Action

All models have threaded bushings at the inner ends of the lower control arms. Oil retaining rubber seals are used. This change on LaSalle makes a material improvement in quietness and serviceability.

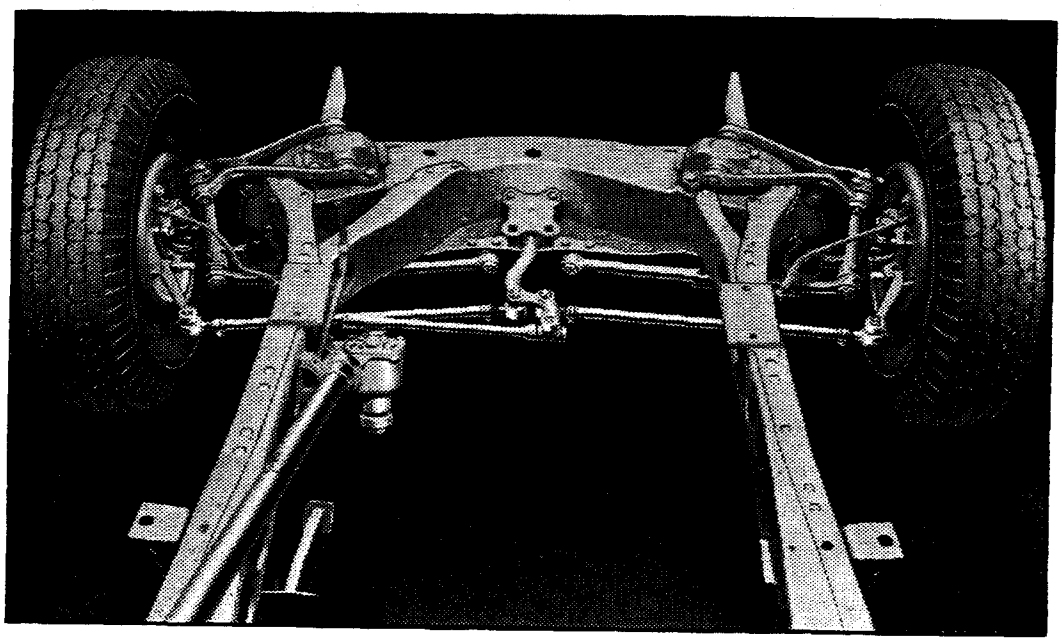
Each front spring consists of a helical coil held between a seat on the lower forked arm forging and a second seat formed as an integral part of the chassis frame. Front frame arms encircle the helical coils on

LaSalle and Cadillac Sixty, while the coils are mounted outside the frame side bars on Cadillac V-8 and Fleetwood.

Coil springs are stressed in use only about half as much as conventional leaf springs, hence service breakage is rare. However, Cadillac makes certain that these springs will withstand many times the forces ever imposed upon them. In addition to precise steel specifications, hardening and tempering, each spring is tested for tensile strength by being placed in a hydraulic compress.

Center Point Steering

One of the first impressive features when driving the new Cadillacs or LaSalles is their superior ease of handling in city traffic or at high speeds on the open road. This is the result of Center Point Steering made possible by Knee Action.



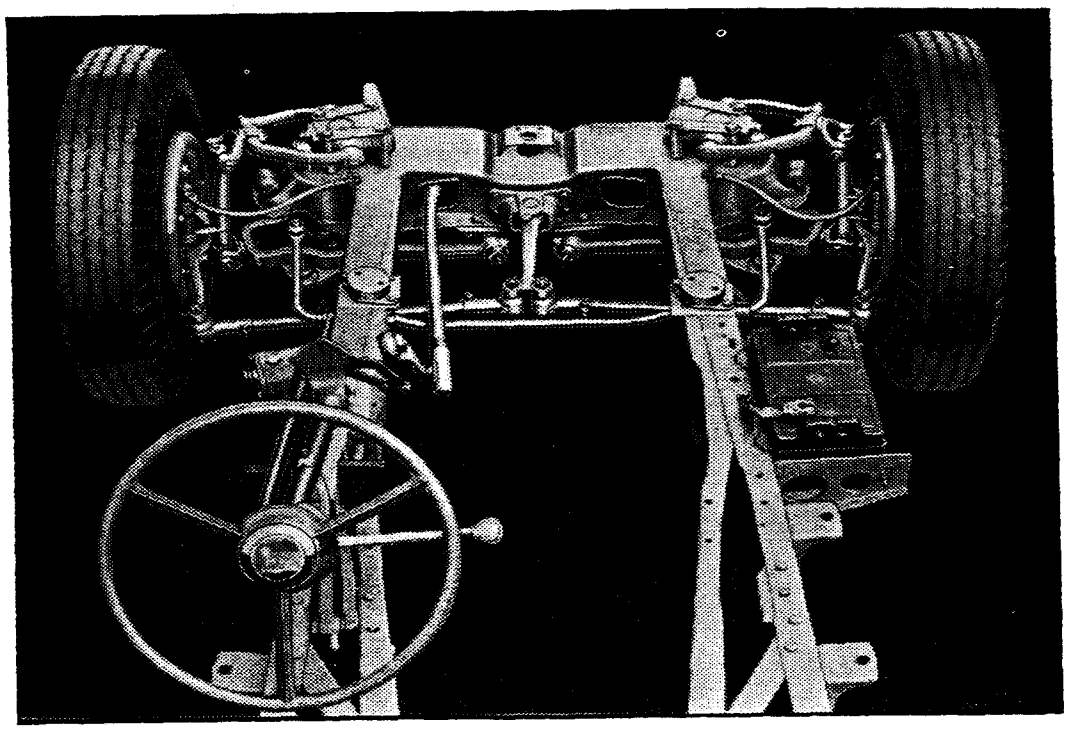
LaSalle and Sixty Center Point Steering

There is no front axle to transmit road shock to the steering mechanism. Accurate steering geometry at all times and short turning radius are achieved by two

equal length steering cross rods mounted parallel to the lower forked arms of the Knee Action assembly. Each cross rod operates a front wheel.

A drag link controls the two cross rods at the center, hence the name "Center Point." This drag link is cross mounted on LaSalle and Cadillac Sixty, and longitudinally mounted on the V-8 and Fleetwood. The latter method provides the larger Cadillacs with steering ease equivalent to that of the smaller models. Steering knuckle thrust is taken through ball bearings.

The drag link is operated by a roller shaft extending from the bottom of the steering gear housing. An eccentric bushing around this shaft facilitates steering gear adjustment. All models use the sturdy worm and double



V-8 and Fleetwood Center Point Steering

roller type of gear mechanism. This is straddle mounted to provide rigidity and to maintain correct roller and tooth contacts at all times.

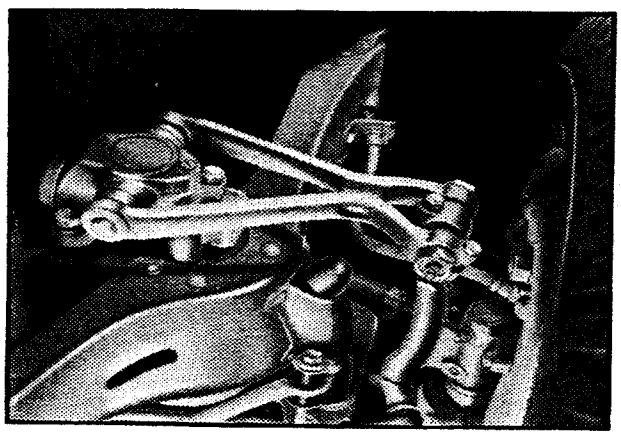
The Fleetwood steering gear housing is now mounted

outside the frame side bar because of the new frame construction, its roller shaft extending through the frame side bar. Steering column universal joints are used on the Fleetwood, making this 141 inch wheelbase car exceptionally easy to handle, since they eliminate steering wheel "nervousness" or whip. These universals are made the same size as those on the drive shaft of other cars and will withstand a maximum pressure of about 1000 foot pounds.

The Sixty Special, V-8 and Fleetwood have anti-friction needle bearings at the top and bottom of the king pins which reduces friction. Center Point Steering eliminates the need for friction which must be left deliberately in the conventional steering systems of other cars. Much easier and more accurate steering results.

Shock Absorbers

All series of Cadillac and LaSalle employ double acting hydraulic shock absorbers of the end-to-end discharge type. This is more costly and superior shock absorber equipment than is used on any make in the LaSalle and Cadillac Sixty price classes; superior in fact to equipment used on many other fine cars.



End-to-End Type Shock Absorbers on LaSalle and Sixty

The front shock absorbers are attached to the upper arms of the Knee Action system, and the rear shock absorbers to the rear springs. End-to-end shock ab-

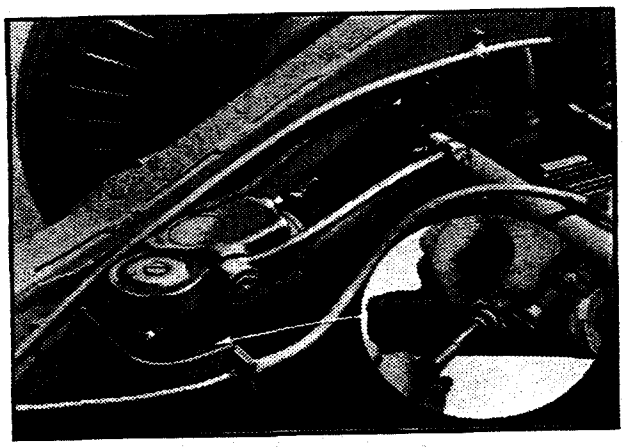
REVISED 12-15-37

sorbers have more power to control both compression and rebound actions of the springing system, one reason for their superiority over other types. Also, their characteristics may be more accurately determined by Cadillac engineers to achieve the best riding results.

Firm rubber bushings at both ends of the shock absorber links worked so well in increasing the firmness of shock absorber action on LaSalle and Series 60 last year that they are now used on all Cadillacs as well, replacing the half-ball joints.

Dash pot inertia controls are added to the rear shock absorbers on the Cadillac V-8 and Fleetwood providing these cars with the very finest and most costly shock absorbers obtainable. No other fine car has them.

The dash pot on the inertia mechanism acts as a piston in a cylinder containing oil to prevent the action of the inertia weight on extremely rapid axle motion relative to the body such as would occur on a washboard road. On the paved road the body tends to swing up and down slowly on the car springs which brings the inertia control into action increasing the shock absorber resistance.



Dash Pot Inertia Control Shock Absorber with Manual Adjustment

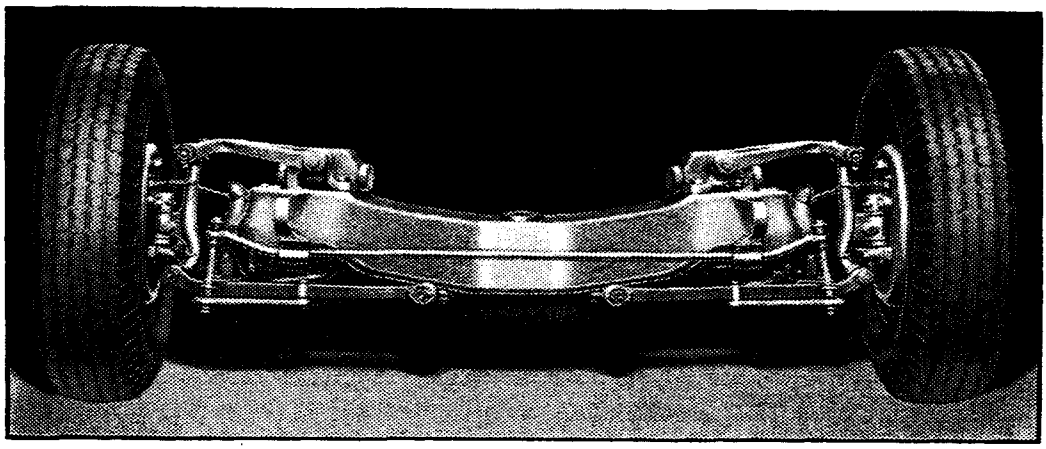
In addition, the inertia control shock absorbers have a three-way manual adjustment which permits a variation of setting to give a soft, medium or firm ride best suited to the owner's requirements.

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Double Ride Stabilizers

Ride stabilizers, both front and rear, of superior perfected design, are standard equipment on all Cadillacs and LaSalles. They provide a degree of handling stability and feeling of security on curves and steeply crowned roads and an absence of body roll and shake on rough roads not obtainable in any other American passenger car.

The front stabilizer is of the torsion or spring bar type. It is mounted in front of the frame cross member on LaSalle and Cadillac Sixty, and behind the cross member on the V-8 and Fleetwood. The operating levers formed at the ends of the shaft are linked to the spring cups while the shaft itself is bracketed to the frame side members. The shaft is of one piece unit construction for strength and rigidity. The importance of the design is that as one side of the car attempts to raise



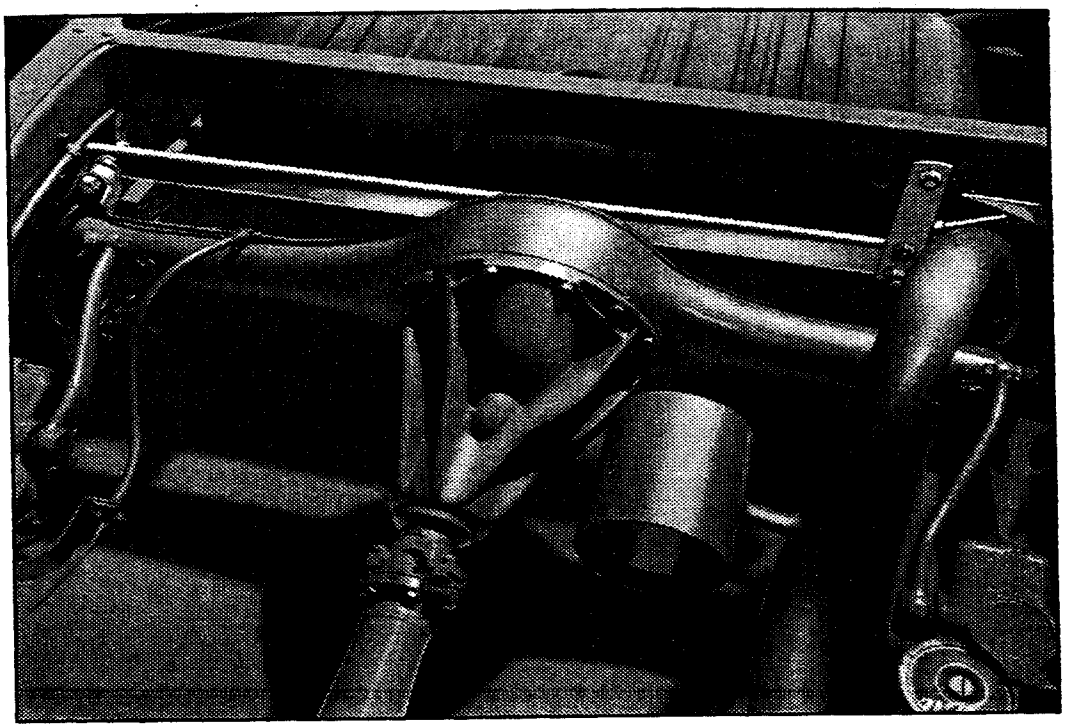
Torsion Shaft Front Stabilizer—LaSalle and Sixty

farther than the other, the stabilizer resists with a twisting action, holding the car on an even keel. This greatly reduces body roll and side sway, improving comfort and safety over other cars. The front stabilizer is also an important factor in high speed roadability.

The cross link rear stabilizer, exclusive to LaSalle and Sixty last year, is so efficient as an anti-shake and roll

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resistor to body movements that it is employed on all Cadillacs. The heavy steel bar is linked between the rear frame cross member and the rear spring clip.



Cross Link Rear Stabilizer—V-8 and Fleetwood

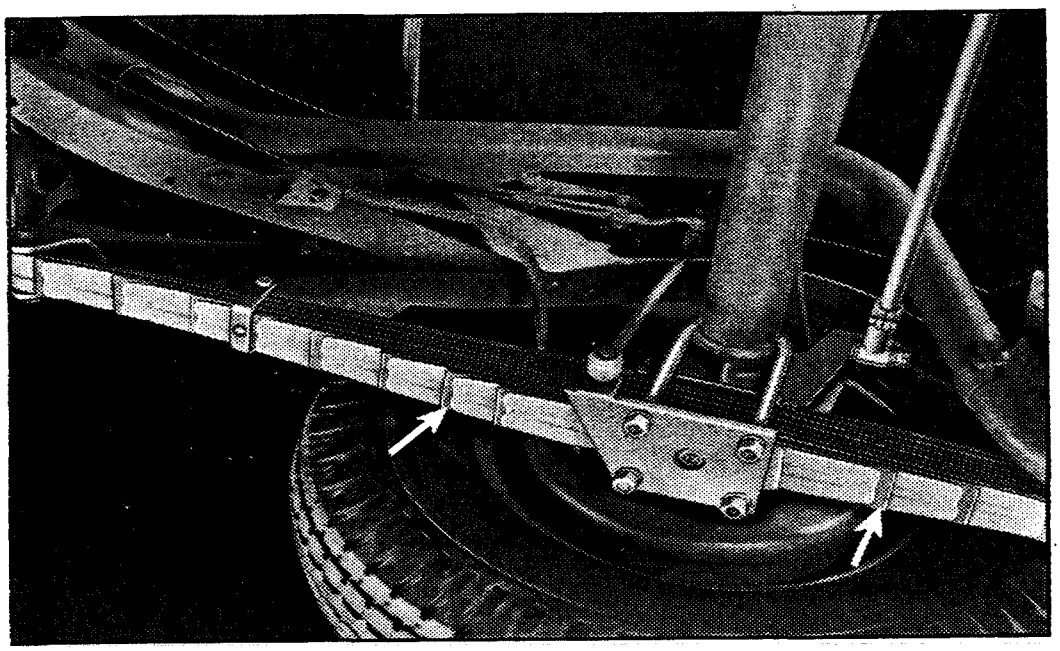
These links permit the stabilizer to counteract both rolling and sidewise body-to-chassis movements.

Rear Springs and Shackles

Semi-elliptic rear springs are used on all series. The spring leaves are separated by liners impregnated with a wax anti-friction material and never require lubrication nor will they ever squeak. Waxed rear spring liners are exclusive to all Cadillacs and LaSalle. With liners spring covers are detrimental since they act as dirt collectors, hence they are not used on any of the new series.

Strong and resilient leaves are used for silent flexibility and each is grooved lengthwise through the center which increases spring strength in proportion to weight. These grooves also serve to hold the waxed liners permanently in place.

Springs are rigidly attached at the front to the frame by one-piece rubber bushings on the Sixty Special, V-8 and Fleetwood chassis. A rubber bushing is also used



Waxed Rear Spring Liners

in the upper shackle where the spring is connected at the rear to the frame. The lower shackle bearing is threaded. The V-8 and Fleetwood employ the double bar type shackle.

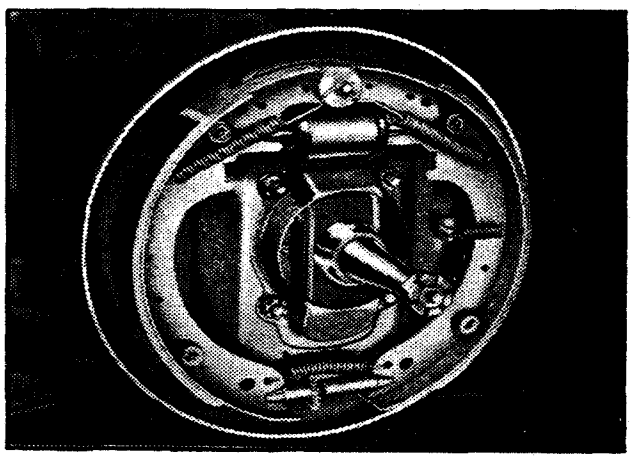
The LaSalle and Sixty have the "U" type compression shackle. Both have threaded spring bolts. Bushings are used at all three points of spring attachment.

On Cadillac Sixty Special, Custom V-8 and Fleetwood, rear springs have been moved close to the wheels which improves roadability by reducing roll.

Hydraulic Brakes

All Cadillacs and LaSalle utilize the hydraulic principle for braking because this method insures a positive, equal braking action on all four wheels which can never be permanently achieved with mechanical brakes. To-

day practically all car owners recognize the greater safety and dependability of hydraulic brakes and insist upon them.



Hydraulic Brake

Inherent positiveness of the Cadillac braking system results from an infallible law of physics which says that pressure exerted upon a liquid within a container will be distributed equally and undiminished in all directions. Applying this principle in the Cadillac or LaSalle braking system, pressure is created by the foot on the brake pedal which controls a piston within a cylinder of fluid. Double thick steel piping and heavy flexible hose connections conduct this fluid to two additional pistons in each wheel brake cylinder, these in turn forcing both brake shoes simultaneously against the brake drum retarding the car. Both shoes for all four wheels must be in contact with their drums before hydraulic pressure is applied. This prevents pulling or grabbing of an individual wheel.

Tubing is carried inside the frame side bars to eliminate any danger from flying stones. A supply tank at the master cylinder maintains a constant supply of fluid, regardless of expansion or contraction due to temperature changes.

Brake drums are of the expensive composite construction, giving a wear and score resisting, heat radiat-

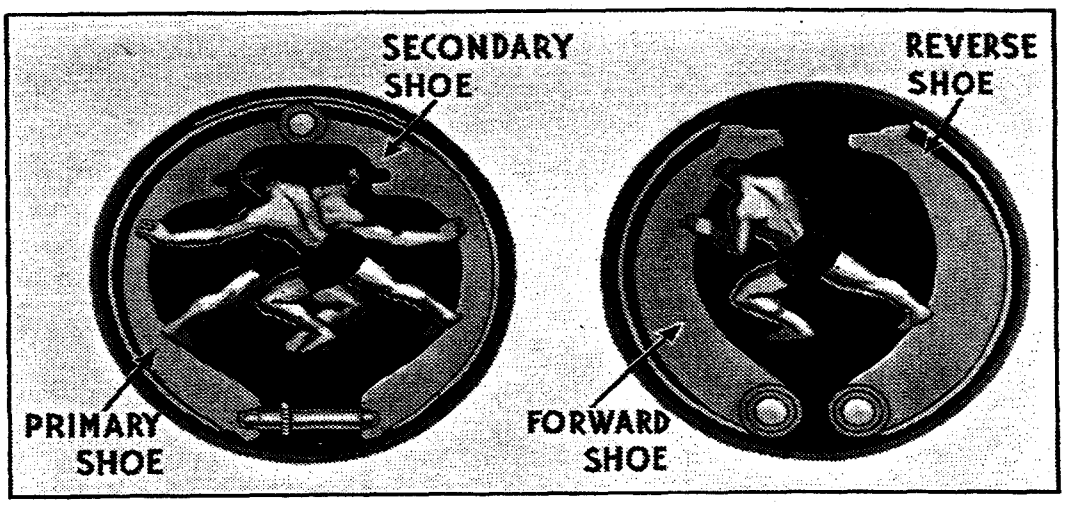
ing surface of cast iron moulded to a strong steel back plate. These drums, in addition to self-energization, permit the use of hard durable linings and extend the life and dependability of the brakes. Total brake lining area for LaSalle and Cadillac Sixty is 220 sq. in. Lining area on the Cadillac V-8 is 246 sq. in. and on Fleetwood 258 sq. in. On all models brake lining area is much greater than on any other cars of similar size with the result that brake lining wears far longer and cost to owners is far less.

Braking ratio is 54½% front and 45½% rear on LaSalle and Cadillac Sixty; 57% front and 43% rear on the larger Cadillacs. The reason for larger cylinders and drums on the front wheels is because of the tendency of car weight to shift forward on deceleration increasing traction on the front wheels. This action is thereby utilized to increase braking effectiveness.

Duo-servo brake action, or self-energization, is used because this method permits the use of hard molded linings of longer wearing life and provides greater ease of brake operation than can be obtained with a small amount of energization. The self-energizing principle involves a conversion of the car's motion, whether in forward or reverse direction, into additional braking energy. Brake shoes when applied tend to wrap themselves into tighter contact with the drums, thereby providing maximum braking energy with a minimum of pedal pressure. Both brake shoes float within their drums so that each can adjust itself to the drum giving equal pressure around each brake shoe. Both shoes are, therefore, effective in stopping the car whether in forward or reverse speeds, and the entire brake lining contacts the drum, thus wearing evenly and prolonging its life.

In another method of hydraulic braking which claims no self-energization, both shoes are anchored to the

brake support plate, hence only one shoe is effective in stopping the car in either direction of travel. This obviously reduces effective brake lining area by half



Both Brake Shoes Effective in Stopping

Only One Shoe Effective in Stopping

and greatly increases brake lining wear. Also the location of this anchor relative to the brake drum must be precisely maintained to secure uniform contact between shoes and drum. This is difficult, if not impossible, resulting in localized lining wear and either very hard or very sensitive brake application. This makes it often impossible for the driver to judge accurately the amount of foot pressure necessary to bring his car to a smooth, easy stop.

Hand Brake

An independent mechanical brake system operates the rear brake shoes for parking and emergency stops. A feature of this system is its expensive cross shaft construction for greater dependability than can be obtained with other types.

Individual cables run from the crossover shaft, operated by the brake lever, to each of the rear brake shoes. Should one of these cables break, the shaft would still operate the other shoe, thereby insuring brake action.

On some cars the hand brake acts upon the propeller shaft, hence if one wheel is jacked up in order to change a tire, the brake will not hold the car. The wheel on the ground must be blocked to prevent the car rolling off the jack. Such a condition could be dangerous for a person not familiar with this type of hand brake if called upon to change a tire. In addition, such a braking system obviously applies the braking load through the drive line and rear axle gears. Quick application when the car is moving might have disastrous consequences.

Propeller Shaft

The propeller shaft is of tubular spline construction which combines great strength with light weight. Splines are formed on the inside of a tube pressed into a second tube equal in diameter to the propeller shaft proper. The splined and shaft tubes are welded together.

Prior to assembly each propeller shaft is balanced dynamically and statically to ½ of an ounce at 4200 R.P.M. to prevent whip at high speeds. Improvements in machining have been made for 1938 which aid in maintenance of this accurate balance.

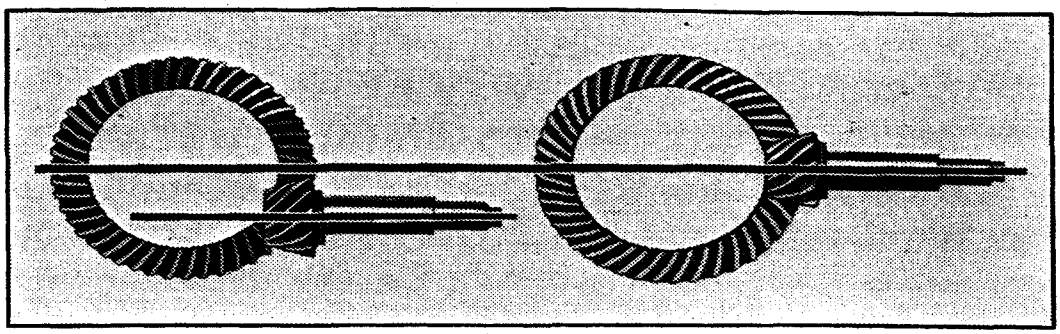
Universal joints are extremely large and durable and have two permanently lubricated needle bearings.

Despite increased wheelbases short propeller shafts are made possible by the long, strong transmission extension. This increases high speed smoothness.

Hypoid Rear Axles

Constantly striving for greater interior body room and greater vision from within the car, Cadillac engineers have perfected a hypoid rear axle suitable for heavy cars. All series of Cadillacs and LaSalle now have hypoid rear axles which permit low body floors, unusually great headroom and door heights.

Because of longer wheelbases and greater weight the larger Cadillac hypoids have certain differences in construction from the rear axle used in LaSalle and Cadillac Sixty.



Lower Pinion Mounting of Hypoid Design Permits Lower Floors

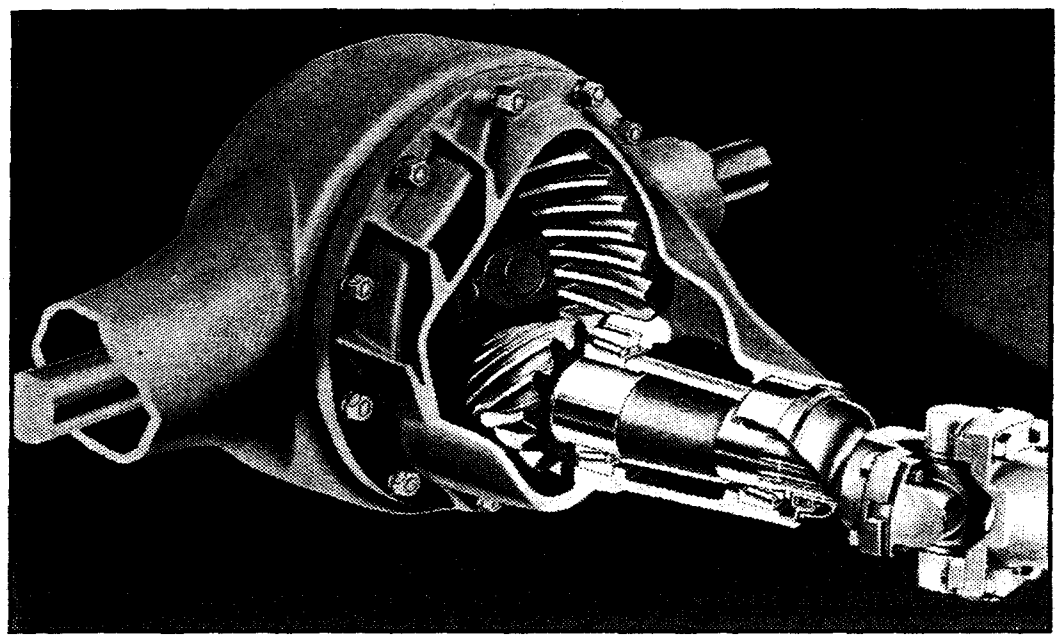
The differential bearings are adjusted by shims on LaSalle and Sixty while on the V-8 and Fleetwood the sleeves which position these bearings are threaded so that adjustment is effected by rotating the sleeve. Cadillac V-8 and Fleetwood ring gear diameter is eleven inches; on LaSalle and Sixty it is 9⅜ inches.

The pinion shaft bearings on the new hypoids for both the Cadillacs and LaSalle are of tapered roller design. They are adjusted by shims and pre-loaded on assembly to provide minimum pinion deflection under operating conditions. Oil passages are provided in the carrier casting to lubricate these bearings. This improved construction increases axle durability and quietness.

Both hypoid axles conform to the same basic principles of Cadillac design which provide long life in the assembly.

Both ring gears and pinions are held to extreme precision limits. The variation from true accuracy is less than can be measured by ordinary methods. Each gear set is carefully matched by hand in a sound proof room. In addition, each gear case is specifically manufactured for its own set of gears, a quality standard not adhered to by any other manufacturer.

The differential housing is cylindrical in shape to contribute strength to the axle. It encircles the tapered roller differential bearings and is carried in a heavily ribbed carrier for rigidity. The axle cover is welded



Rugged Hypoid Rear Axle Construction

in position to further increase housing rigidity. All of these features are of Cadillac design and add strength and ruggedness exclusive to Cadillac-built cars.

To reduce overhang and thus decrease wheel bearing and axle shaft loads, wheel bearings have been moved outward on all Cadillacs and LaSalle. Spring pads have also been moved outward on all larger Cadillacs which reduces axle housing stress.

LaSalle's rear axle ratio is 3.92—1. For even more outstanding acceleration than before the Cadillac Sixty and V-8 ratios have been increased to 3.92—1 and 4.58—1 respectively. The Fleetwood has a 4.58—1 ratio. These ratios are important factors in the superior accelerative ability and low piston speeds of Cadillac-built V-8 engines.

Hotchkiss Drive

The Cadillac-LaSalle Hotchkiss drive contributes to riding comfort by allowing the rear wheels to follow road irregularities freely. Starting and stopping strains are cushioned by the rear springs, and smooth rear axle action over rough roads is attained. Unsprung weight is reduced to a minimum.

The torque tube or torque arm drive used on some cars aggravates harsh riding because rear wheels are held inflexibly to the drive line. This construction ties the whole rear axle and propeller shaft assembly rigidly to the transmission frequently causing severe breakage to all parts in accidents involving a rear wheel and axle.

In an attempt to reduce the amount of unsprung weight, coil type rear springs may be used in conjunction with torque tube drive or its equivalent instead of leaf springs. Cadillac engineers believe the Hotchkiss drive to be so superior to torque arm or tube inflexible construction that they prefer the leaf spring design. In fact, with rear wheels supported by the springs Cadillacs and LaSalle still have far less unsprung weight than the torque tube with coil springs.

With coil rear springs the wheels are still supported by the torque arm, hence this method cannot be called an independent rear suspension.

LA SALLE PERFORMANCE

The superiority of V-8 engine design over the eight in-line type is borne out most definitely in LaSalle's superior performance over other cars.

LaSalle's remarkable speed, acceleration and hill climbing ability are due to an unusually high ratio of power relative to car weight. The new LaSalle has 8.0 cubic inches displacement per 100 lbs. while the average for all other cars is approximately 6.85. This means that LaSalle's engine is larger relative to car weight than any eight cylinder automobile, regardless of price, with the single exception of the Cadillac Sixty, and 17% larger than the average eight. Part of this extra available power is taken in better accelerative ability. Part is taken in low piston travel by means of a low rear axle ratio for operating economy and longer engine life.

The effect of LaSalle's high ratio of power to weight on acceleration at both low and touring speeds is most noteworthy. In fact, the new LaSalle is so rapid in its acceleration above 60 or even 80 miles per hour that the driver is able to avoid highway traffic with the greatest of ease. Such accelerative ability is an important factor in driving safety, though this is not generally recognized. Very often accidents are caused by the driver's inability to move away quickly from an impending emergency.

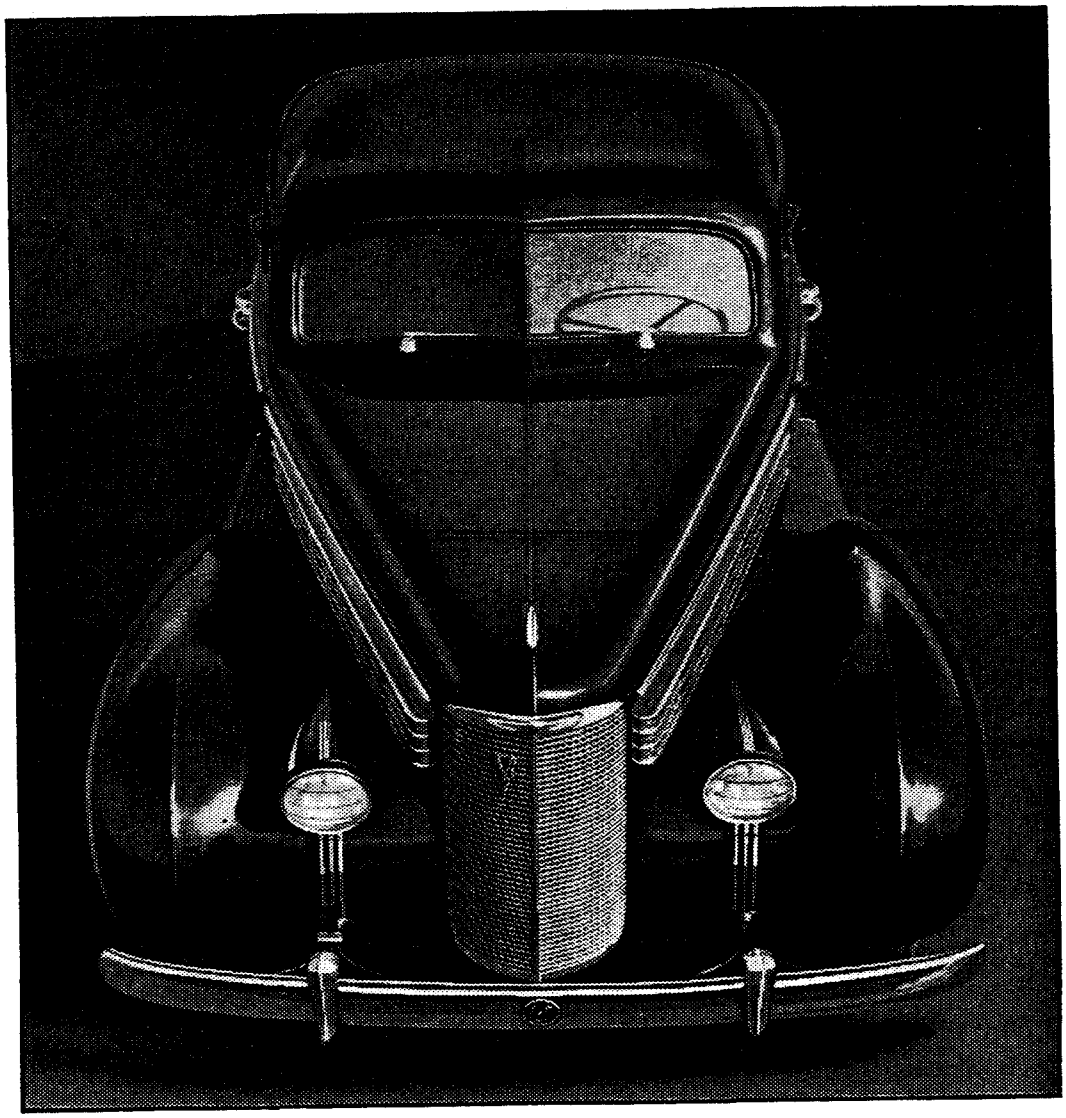
The new LaSalle is an outstanding performer over all eight cylinder cars, surpassed only by the new Cadillac Sixty. LaSalle is also one of the safest and easiest cars to drive.

These are a few of the many reasons why LaSalle won so many friends last year and why LaSalle promises much greater popular approval in 1938.

LA SALLE APPEARANCE

Impressive of Greater Power and Sturdiness

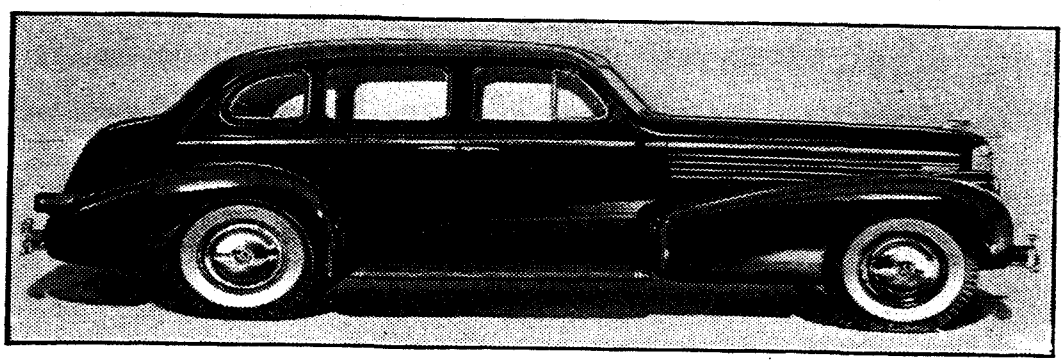
LaSalle's bid for 1938 style leadership arises from a redesigned and freshened exterior appearance which symbolizes this car's greater power and sturdiness.



Front View: From the front, the new LaSalle is distinctive for its balanced, clean-cut lines. The whole car appears to hug the road. The characteristic LaSalle die-cast radiator grille has a more deeply curved vee and is two inches wider giving a more massive appearance. A gold V-8 emblem is attached to the grille.

Higher, wider fender catwalks also contribute to the appearance of sturdiness and stability. New headlamps are lower and more widely spaced. They are mounted on and appear to be partially submerged in the fender catwalks. Below each of these long streamlined headlamps is a projection in front of the fender on which are three vertical stainless steel bars. A bright metal trim strip extends along the top center line of each headlamp. LaSalle's massive fenders are unaltered in appearance, sweep low over the front wheels, are deeply skirted and have the characteristic LaSalle crease.

The vee windshield slopes rearwardly at a thirty-nine degree angle into the smooth steel Turret Top.



Side View: The new hood and redesigned louvres give a side-view impression of greatly increased hood length. The hood extends rearwardly almost to the windshield and goes forward without a break to the radiator grille. Hood louvres extend from just behind the radiator grille to a point almost below the windshield. These new elements of design increase the apparent hood length remarkably.

Die-cast hood louvres, which lent so much beauty to the previous LaSalle, have been slightly refined. They are longer and narrower and, being unobscured by the headlamps, may be seen for their full length. Four horizontal chrome strips merge into a ribbed chrome metal section at the front.

A front opening hood is used. Since there is no center hood hinge a crease, similar to and in keeping with the fender crease, extends from the cowl to the radiator ornament. With this clever design, the hood is lifted by pushing upward on the characteristic LaSalle radiator ornament. This upward motion releases the hood latch and a continuation of the movement lifts the hood which is hinged at the cowl. Springs are provided which securely hold the hood in its raised position. Reversing the motion first lowers the hood and then latches it in position. A safety catch holds the hood closed in case the operator fails to latch it by pulling down the ornament.

Another feature contributing to LaSalle's lower appearance is the relocation of the stainless steel belt mouldings. These are of new design having three parallel grooves, and are placed below the body belt curve.

Running boards are separated from the front and rear fenders preventing the collection of dirt and water. They are fully covered with rubber and have a chrome strip across each end for decorative treatment.

Massive door handles are smoothly rounded and curve snugly to the door panel for safety. They are mounted integrally without exposed screws.

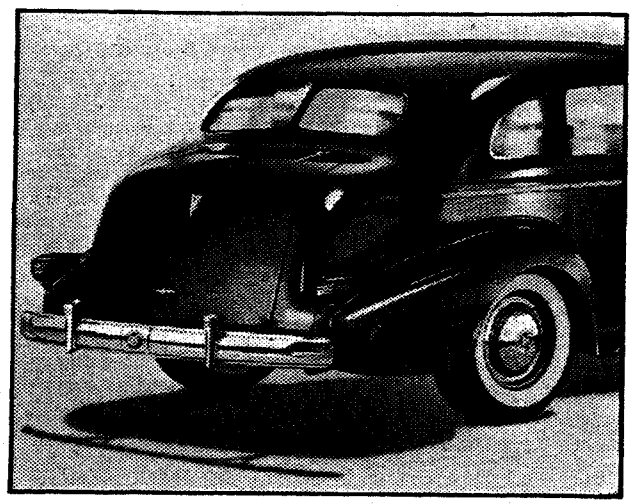
Rear View: The LaSalle rear view is one harmonious blend of smooth, flowing lines in which trunk, fenders and tail lamps have a symmetrical part.

The uniquely designed tail lamps on the previous LaSalle are retained. They appear to be moulded into the rear fenders. Each lamp has rectangular shaped lens assuring illumination to the sides of the car as well as directly to the rear. This is of great safety and convenience to the driver when backing up at night. Reflector buttons are placed below each lamp as another safety feature in the event of a burned out bulb.

The trunk is of the same large size as before and has

exposed chrome plated hinges and a heavy, T-shaped safety-rounded lid handle. A V-8 emblem, similar to the radiator grille emblem, is mounted in the center of the trunk door. Thus LaSalle is identified front and rear as a "V-8."

LaSalle
Rear View



A new automatic trunk supporting arm has been designed which is stronger and more easily operated. The trunk lid, when lifted to upright position, engages a catch which holds it securely. Merely by pushing upward slightly the catch is released and the lid may be easily closed.

New, wide single bar bumpers carry large, strong vertical guards. In their center is a round "LaS" monogram with red background. Bumpers are attached directly to the frame side bars.

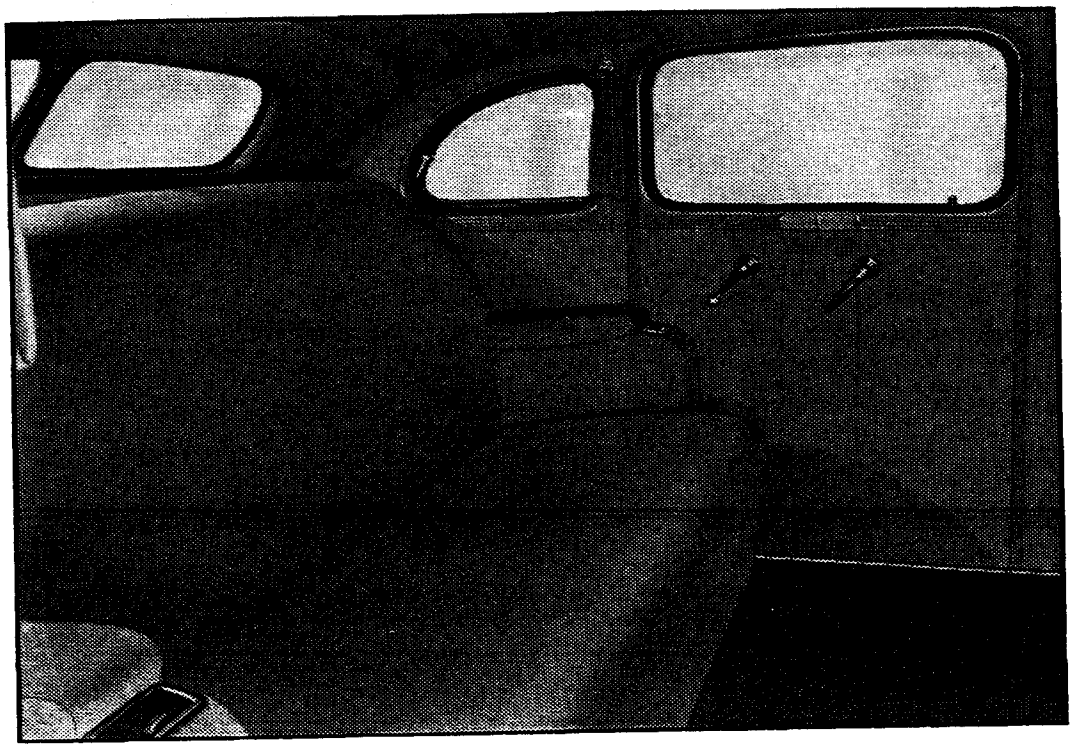
New Fenderwell Tire Carriers

On cars with six wheel accessory equipment exterior appearance is greatly improved by new drum type metal tire covers. One of these covers is standard on the LaSalle Five Passenger Convertible Sedan since its spare tire is mounted in a right front fenderwell.

INTERIOR LUXURY

Greater Comfort and Smart Trimming Styles

LaSalle interiors have been freshened in appearance with new fabrics and a new trimming style in which the

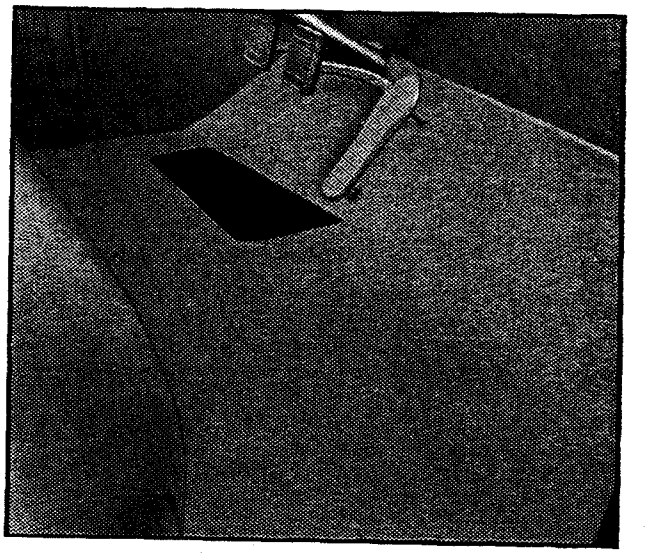


Roomy, Comfortable Rear Compartment

doors are paneled by two vertical stitchings, at the top and bottom of which are four horizontal welts. Upholsteries are all-wool cloth of high quality. Two Nuvo-Cords and two ribbed broadcloths in a new pattern are available in tan or gray.

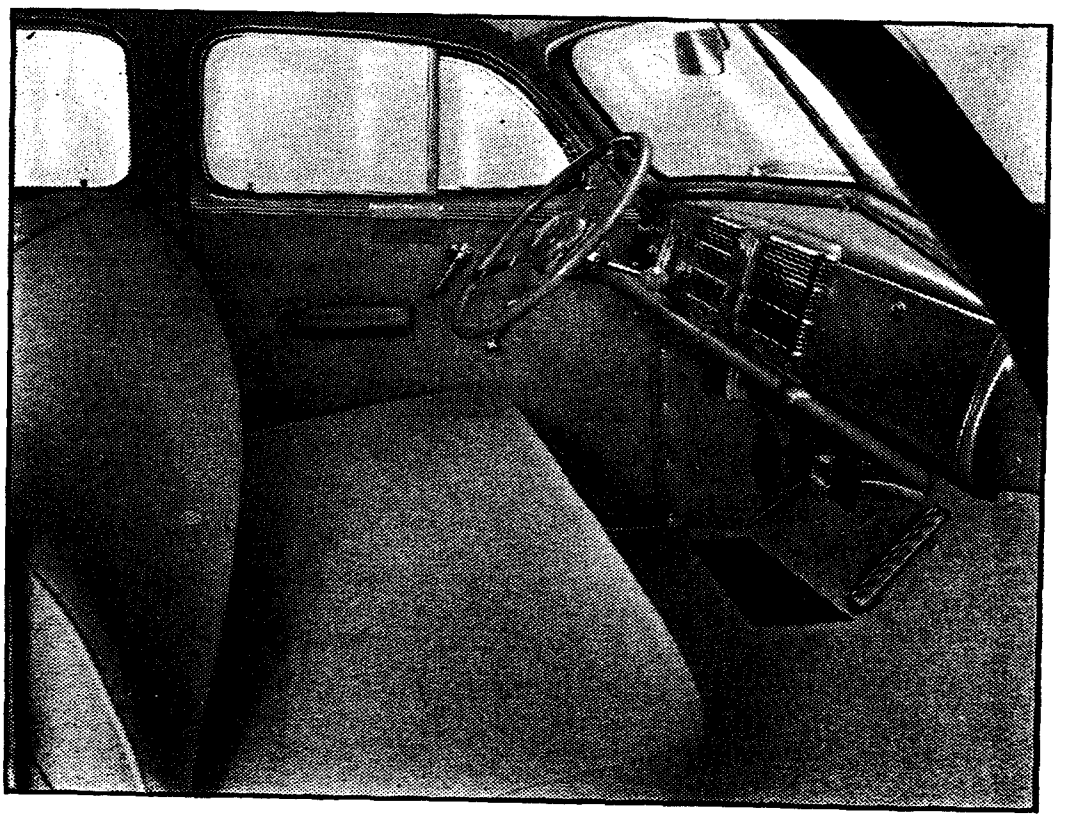
Tasteful Colonial design hardware is used, while appointments are complete for comfort and convenience. There are two ash receivers with snap lids built into the rear seat arm rests. Assist straps are provided. A new robe cord is neatly attached to the front seat back. A foot rest is built into the back of the front seat. Garnish mouldings have a modernistic treatment and are finished

in a new neutral shade which matches with either tan or gray upholstery.



Level, Unobstructed Front Floor Richly Fitted with Pile Carpeting

Unobstructed Front Floor: An innovation contributing greatly to passenger comfort is the unobstructed

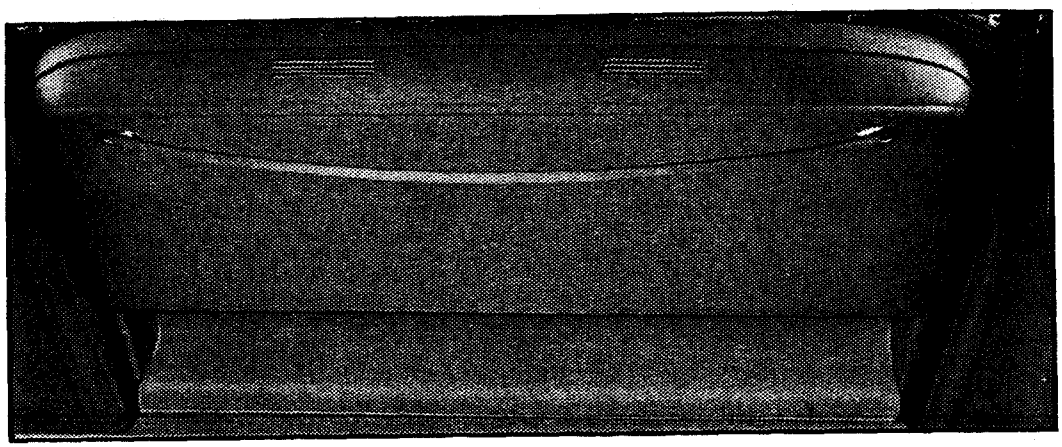


Three Passenger Comfort in Front

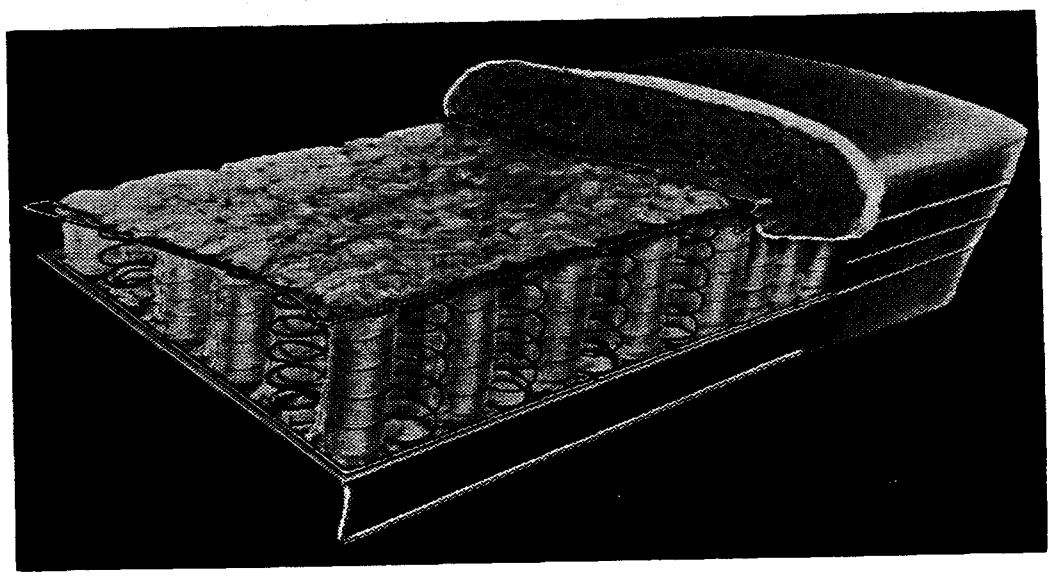
front compartment floor. Since the transmission control lever is now placed on the steering column, the driver

may easily enter the car from either side. Three persons may occupy the wide front seat in complete comfort.

The front floor itself is level. There are no protruding tunnels in either front or rear floor to prevent foot comfort. Floors are completely covered with snug fitting, heavy pile carpets. A leather heel pad is provided below the foot pedals for reinforcement.



Cushioned Front Seat Back: A new front seat construction has been adopted for LaSalle to increase safety for rear seat occupants. The front seat back consists of a

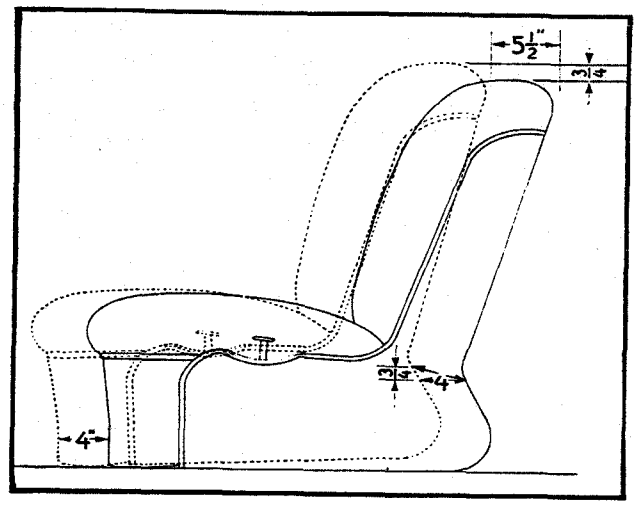


LaSalle Seat Cushions Have Marshall Springs

thickly padded cushion which is actually a continuation of the front seat back cushion carried over the top and

down the tonneau side. The padded portion of the seat back is decorated by two groups of horizontal welts. This design also makes a most comfortable head rest for reclining front seat passengers.

The front seat has an adjusting mechanism at the left side with which the top of the seat back moves forward five and one-half inches as the seat itself is moved for-



Front Seat Adjustments

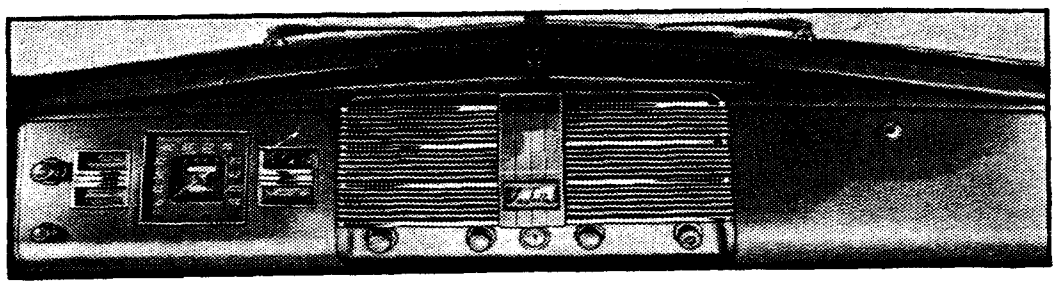
ward four inches. Thus, the very short or tall person may have a comfortable driving position equal to that of a medium sized person.

New Safety Instrument Panel: An entirely new, smoothly curved, and most distinctive instrument panel has been designed for all series of Cadillac and for LaSalle. In the interests of safety it has no projecting knobs or controls. These are either recessed or mounted flush with the panel's face.

The new LaSalle panel is finished in two shades of neutral color, a dark background and lighter central panel, which harmonize with both tan or gray upholstery. Unusually clear visibility, day or night, and beautiful, symmetrically balanced lines are important features of this panel in addition to its safety.

To the extreme left is the starter button and above it the headlamp control switch.

In front of the driver is the instrument cluster mounted in an expensive die-casting. In its center is a large, square, clear vision speedometer which includes headlamp beam indication to three positions. Flanked on both sides are two groups of instruments. These include engine water temperature indicator, fuel supply indicator, oil pressure gauge, and battery charging rate indicator.



Beautifully Curved Safety Instrument Panel

A new style of numerals is used on all instruments. Numerals are white and are applied on the cover glasses. White indicator marks are on dark metallic brown dials.

Another innovation is the unique method of lighting these instruments at night. The opaque dials are illuminated by supplying light on the edges of the glass covers. Instrument faces may be seen clearly, yet never glare. The rheostat dimming switch is, therefore, no longer required. A three-way lighting switch is provided underneath the panel at the center. At night the driver throws this lamp switch to right when he enters the car illuminating the ignition lock light in addition to the instruments. After starting the engine he turns on the headlamps and throws the instrument lamp switch to the left. This turns off the lock light only. When the drive is completed he need only push the headlamp switch off to turn out all lamps. If desired, the car may be driven without instrument illumination by placing the lamp switch in its center position.

The center panel is an expensive moulded plastic material which combines utility with beauty. On cars so equipped the edge lighted clock forms the central unit of this raised panel with a die-cast escutcheon plate below, a very large ash receiver to its right and built-in radio grille at its left. The use of this grille greatly facilitates radio installation. The escutcheon plate is removed for the radio dial.

Below the central panel is a deep recess where control buttons are placed. Knobs are of plastic material to match the panel. From left to right are two radio control knobs, ignition switch, throttle and cigar lighter. The radio control knobs are installed as standard equipment whether radio is ordered or not. The windshield wiper control is on top of the instrument board in the center of the windshield vee. A vacuum booster insures windshield wiper operation under all conditions.

The right hand section of the instrument board consists of a large glove box, the door of which is a die-casting. In conformance with all other safety features, the door lock is practically flush with the door.

Both standard and flexible spoke steering wheel rims are colored to harmonize with the instrument board central panel.

Fisher No-Draft Ventilation

Fisher No-Draft Ventilation is an unexcelled means of ventilating all Cadillacs and LaSalle. The Fisher system permits an abundance of fresh air to enter and circulate throughout the car carrying away all stale air. It may be individually controlled to suit the convenience of each passenger or driver. It prevents frosting or fogging of all windows.

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UNISTEEL TURRET TOP BODY

Passengers Ride Within a Tube-Like Unit of Steel

1. One-piece solid steel top: permanent, beautiful.
2. Sturdy "U" shaped steel roof bows.
3. Steel roof rail welded to inner steel body framework.
4. Steel braces welded to sides of inner body structure joined by heavy steel cross member below rear window frame.
5. Steel body panels reinforced with steel.
6. Steel door panels welded together.
7. Two "U" shaped steel bars welded together form each pillar post.
8. Steel rocker panels welded to sides of underbody.
9. Steel floor welded integral with body.
10. Cowl structure one complete unit of reinforced dash, windshield posts and header panel welded to Turret Top.

Thus the body is a structural frame of steel in its own right and is joined to the unusually heavy chassis frame by heavy, insulated bolts.

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INSULATION

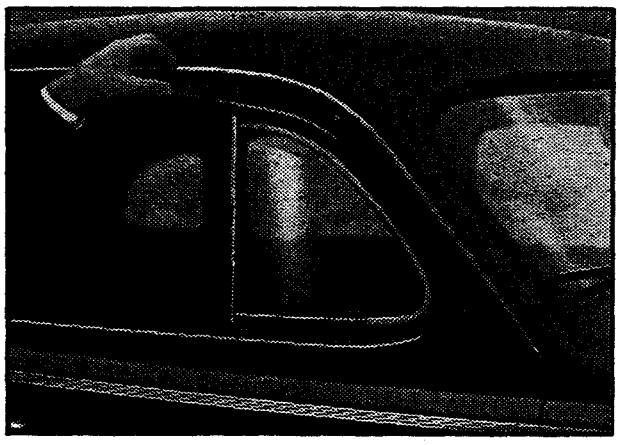
LaSalle's Steel Body is Insulated at Every Point for Quietness and Comfort

1. Trunk lid covered with thick pad of rag felt impregnated with asphalt.
2. Inner sides of trunk lined with heavy serged jute.
3. Rear quarter panels lined with asphalt impregnated rag felt. Dead air space provided. Interior side wall of heavy wool cloth matching upholstery.
4. Using sound amplifying equipment body engineers have located sources of noise transmission. They have scientifically indented steel floor, thereby eliminating them. Floor tightly fitted with heavy layer of impregnated felt to which is added a thick pile carpet.
5. Door panels lined with asphalt impregnated rag felt.
6. Dash and toe board covered with thick layer of celotex and additional layer of jute to seal out engine heat and sound.
7. Turret Top has finest combination of heat, cold and sound insulation available: thick pad of asphalt impregnated rag felt; large dead air space; heavy wool headlining matches upholstery.
8. Inner top portion and rear of trunk has heavy sponge rubber mold preventing sound being telephoned to roof.

Heavy insulating pads interposed around body bolts prevent any metal-to-metal contact between body and frame, thus eliminating body rumbling inherent in cars with single unit frame.

Weatherproofing and Sealing

Every precuation has been taken to effectively seal the LaSalle body from dust, water and drafts. Doors, sills, windows and ventilators have rubber lacings and heavy weather stripping. The windshield is tightly sealed by a plastic cement applied between the body channel, rubber gaskets and glass.



Drip Moulding and Shield

Steel drip mouldings are welded to the sides of the Turret Top and down the sides of the windshield pillar posts. New drip shields over each front ventipane extend further down the front of the opening. These prevent annoying dripping water upon passengers entering or leaving the car.

The screened cowl ventilator is tightly sealed by a rubber gasket carried in the rain trough to prevent water from seeping into the front compartment. An overlocking mechanism is operated by giving the control handle an additional pull after closing the ventilator. This keeps the cowl ventilator securely closed to prevent leakage and drafts and in addition renders anti-theft protection.

All floor openings around the foot pedals are carefully sealed against heat and cold. Heavy pile carpets on both the front and rear compartment floors provide additional protection as well as richer appearance.

Running boards are separated from the fenders at both ends. This prevents the accumulation of water and dirt which dampens and soils shoes and floor carpeting.

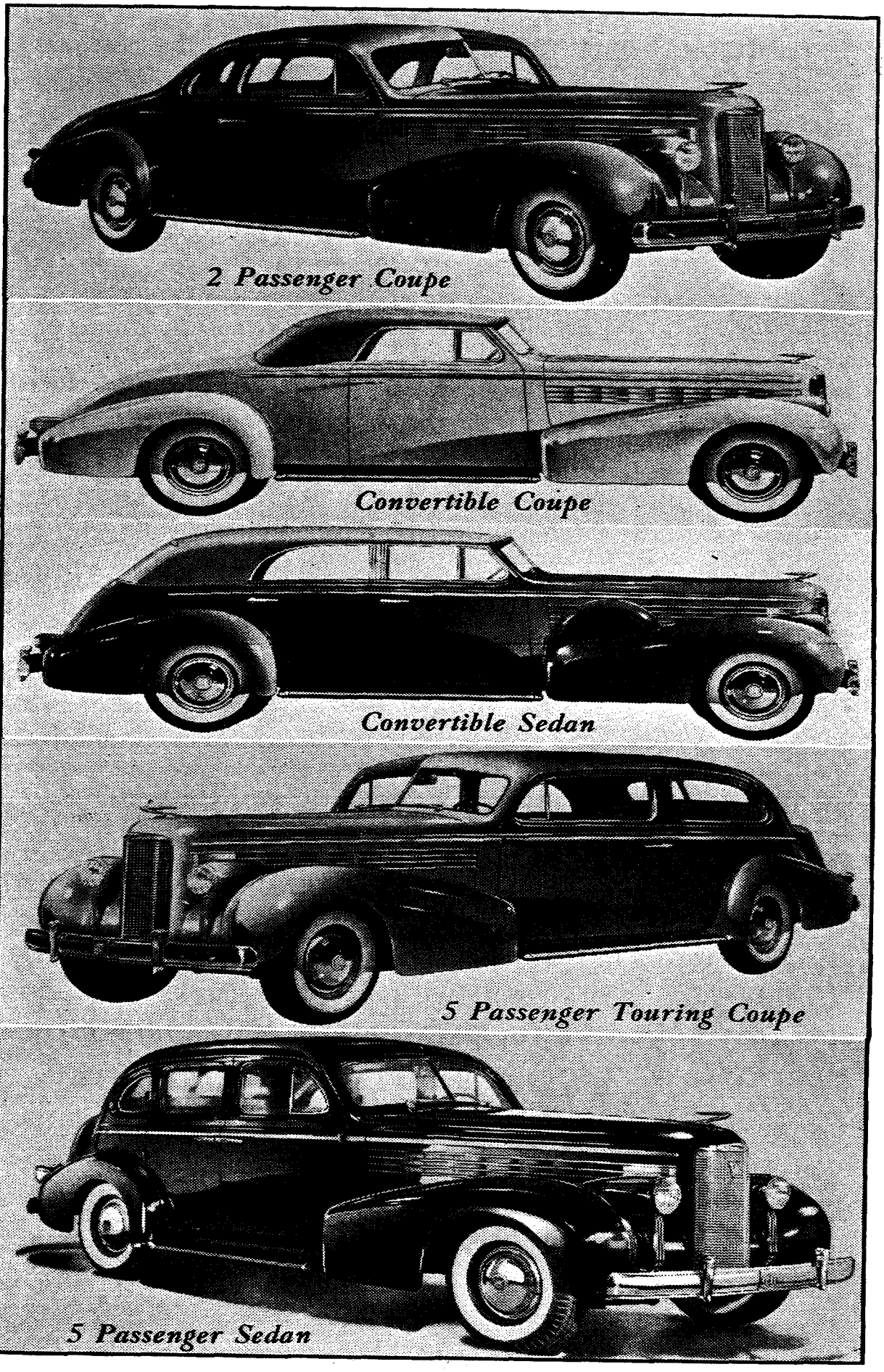
In fact, every attention has been given the new LaSalle to make it soundproof and weatherproof.

Bonderizing and Finishing

The enduring lustre of Cadillac-LaSalle's beautiful finish is due in large measure to the chemical process of bonderizing. By treating all sheet metal and fenders with this bath a primer is provided to the clean, bare metal which prevents chipping, cracking and peeling of the Duco from shock and vibration. Bonderized protection is many times more rust resisting than finish applied directly to the metal surface, yet this process is rarely used by even other fine car makers.

Extreme care is taken in the finishing process to avoid thin spots and fading of any of the new Cadillac and LaSalle color combinations. Six coats are each applied separately both up and down and across the surface for thorough, even thickness and coverage.

After each coat the finish is allowed to bake thoroughly in specially designed air tight rooms under even temperature. It is then oil sanded and polished. Each of these four steps is taken before one coat is completed. Skilled inspectors measure paint thickness with special gauges as an additional precaution for uniformity.


2 Passenger Coupe
Convertible Coupe
Convertible Sedan
5 Passenger Touring Coupe
5 Passenger Sedan

LA SALLE

Interior Dimensions

	2-Pass. Coupe	Conv. Coupe	Conv. Sedan	5-Pass. Touring Coupe	5-Pass. Sedan
Front Seat Width (Hips)	53″	53″	52 5/8″	53″	53″
Rear Seat Width (Hips)			47″	47″	47″
Front Seat Width (Shoulders)	53 3/4″	53 3/4″	54″	53 3/4″	53 3/4″
Rear Seat Width (Shoulders)			48 1/4″	53 3/8″	53 3/8″
Front Seat, Cushion to Floor	15 1/8″*	14 3/8″*	14 3/8″*	15 1/8″*	15 1/8″*
Rear Seat, Cushion to Floor			14 1/2″	14 5/8″	14 5/8″
Front Seat Depth	18″	18″	17 5/8″	18″	18″
Rear Seat Depth			20″	19 3/4″	19 3/4″
Dash to Front of Front Seat	26 3/4″*	26 3/4″*	25 3/8″*	27″*	27″*
Front Seat Back to Front Rear Cushion			13 3/8″*	13 3/8″*	13 3/8″*
Front Seat Cushion to Clutch Pedal	19 5/8″*	19 1/4″*	19 3/8″*	19 3/4″*	19 3/4″*
Steering Wheel to Front Seat Cushion	5 3/4″*	5 3/4″*	6 3/8″*	5 5/8″*	5 7/8″*
Steering Wheel to Front Seat Back	14″*	14″*	11 3/4″*	13 5/8″*	
Headroom—Cushion to Roof—Front	36 1/2″*	36 1/2″*	36 3/4″*	36″*	36″*
Headroom—Cushion to Roof—Rear			36 3/4″	36 1/4″	36 1/4″
Headroom—Floor to Roof	48 11/16″	46 15/16″	49″	49″	49″
Inside Maximum Body Width	55 1/4″	55 1/4″	55 1/2″	55 1/2″	55 1/2″
Front Door Width	41 1/4″	41 1/2″	33 5/8″	43 1/2″	34 1/2″
Rear Door Width			27 3/4″		27 1/2″
Width Over Front Fenders	75 3/4″	75 3/4″	75 3/4″	75 3/4″	75 3/4″
Width Over Rear Fenders	71 5/8″	71 5/8″	71 5/8″	71 5/8″	71 5/8″
Overall Height, Loaded	67 1/2″	66 1/8″	66 13/16″	67 1/2″	67 1/2″
Overall Length, Bumper to Bumper	201 3/4″	201 3/4″	201 3/4″	201 3/4″	201 3/4″

*Dimensions taken with front seat in full rearward position. Seat may be adjusted 4″ forward. Rear of front seat rises 3/4″ with 4″ forward movement.

CADILLAC SIXTY

America's Fastest and Smoothest Eight

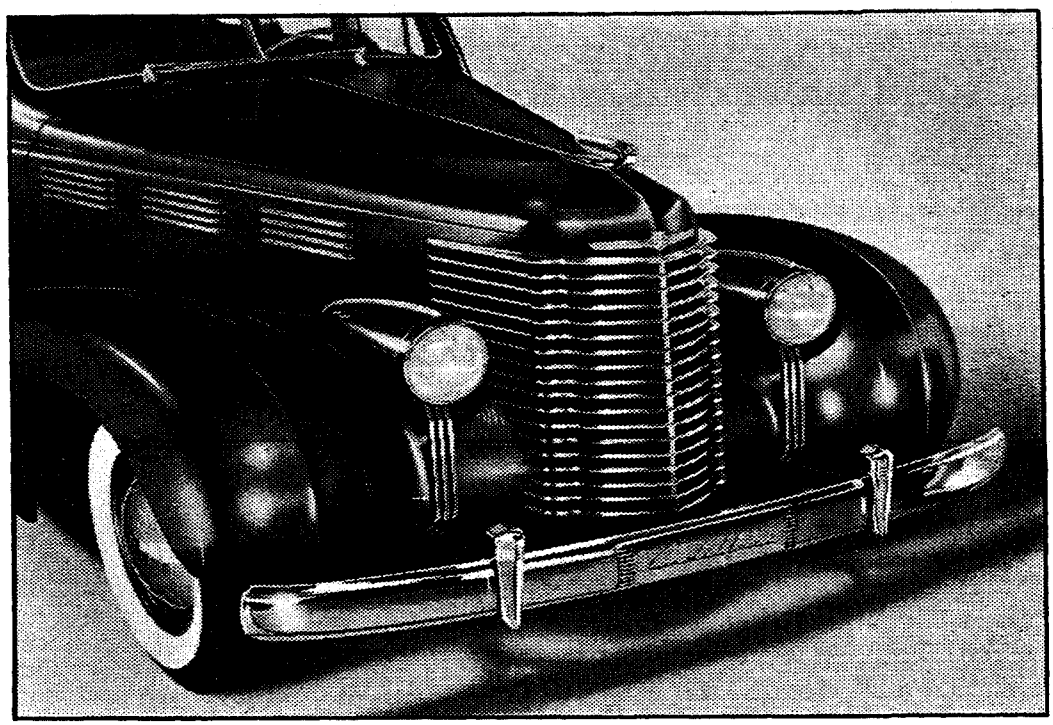
The new Cadillac Sixty continues to hold the title, won by the Series 60 last year, of the best performing American stock car. Designed specifically for those who desire remarkable speed and acceleration under all conditions of travel, the 346 cubic inch V-8 engine is an ideal power plant for the new essentially practical Cadillac Sixty. Cadillac Sixty performance is excelled only by the revolutionary new Cadillac Sixteen.

The Cadillac Sixty engine is equally practical with this car's truly modern body and chassis design. The V-type design is the only engineeringly correct design for engines of eight or more cylinders. Its tremendous available power permits spectacular acceleration and at the same time makes possible low engine speeds at high car speeds. This results in amazing fuel economy and long engine life over other engines.

Smoothness and quietness are also achieved by this low engine speed. In addition, an outstanding new feature introduced by Cadillac for the first time this year, provides a degree of smoothness and quietness never heretofore attained. This is the Syncro-Flex Flywheel. The Cadillac Sixty is the smoothest as well as the fastest of all eight cylinder automobiles.

CADILLAC SIXTY APPEARANCE

The new 1938 Cadillac Sixty represents a marked refinement in motor car design. Its long, sweeping lines are exclusively Cadillac. This fine car is a continuance of Cadillac policy to provide Cadillac quality, name, prestige and outstanding maneuverability in the upper medium price field.



Sixty—Front View

While the new Cadillac Sixties are more conservative in styling than the Sixty Special (the Sixties have running boards, higher floors and greater over-all height), they have many of the Sixty Special's distinctive exterior characteristics. Both cars are unique in their styling. They will never be confused with any other make of car. The radiator grilles are of identical design. The sweeping outward curve without belt moulding along the hood side panels and below the door and rear quarter windows is unique throughout the Sixty line.

Front View: One of the new Sixty's most unique and distinguishing exterior features is the new radiator grille. The massive grille is wider and lower than heretofore. The vee is more deeply curved. Detailed treatment is entirely new with pronounced accent on horizontal lines which curve backward around the vee to break sharply outward into streamlined vanes flowing into the hood side panels. More important than dynamic beauty, this new grille improves cooling by affording greater air distribution over the core face.

A new Cadillac crest appears on widespread wings upon the hood top panel above the grille. The radiator ornament has been modified to conform with the lower, longer lines of the new Sixty series.

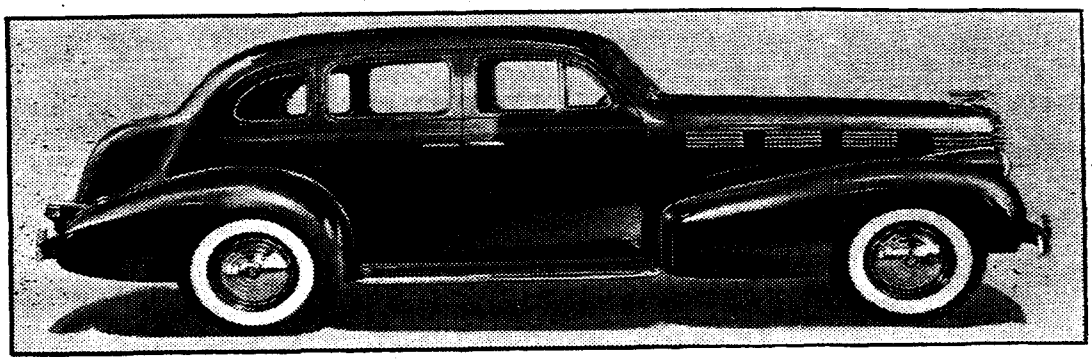
Long streamlined headlamps are mounted on and appear to be partially submerged in the higher, wider fender catwalks. Headlamps are ducoed to match the fenders except for a chrome rib down the top centerline which adds to the streamlined effect. Distinctive projections on the fenders below each headlamp carry three vertical chrome bars. The Sixty's sharply veed windshield slopes rearwardly at an angle of 39 degrees into the smooth Turret Top.

Side View: Here one can best appreciate the lengthy appearance of the new Sixty.

The hood opens at the front and is hinged at the cowl. A center crease replacing the hood hinge, is similar to and in keeping with the fender creases. The hood latch, controlled by the radiator ornament, operates in the same manner as the LaSalle hood. It has a safety catch which holds the hood down in the event the operator fails to latch it.

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On each panel are three groups of louvres, each consisting of four horizontal chrome ribs arranged one above the other. This louvre styling is similar on the V-8 and Fleetwood, providing all new Cadillacs with a unique feature of distinctive similarity.



Sixty—Side View

The characteristic Cadillac fender shapes continue, but appear longer and even more sweeping, particularly at the rear.

The heavy exterior hardware, in which tastefully designed door handles curve in snugly to the door panels for safety, is used.

The Sixty Line differs from all other series in that it does not have a stainless steel belt moulding but has instead a pronounced outward body curve which flows from the hood along the body below the windows into the trunk, forming a highlight from the radiator grille to the rear of the body.

To prevent collection of dirt and water, running boards are separated at the ends from the fenders. These ends are tastefully decorated and protected by heavy chromed strips.

Rear View: Unlike many cars, the Sixty's rear appearance reflects a definite and harmonious part with the car's over-all design. All lines blend smoothly.

door supporting arm of even stronger and more reliable design. The Cadillac crest is in the center of the trunk door. A heavy T-shaped lid handle and large chrome hinges are used.

New tail lamps appear to flow from the rear edge of the rear fenders. Each lamp lens is uniquely designed to give lateral illumination over the entire rear of the car for greater night driving safety. A reflector button is placed below each lens for safety in the event of a burned-out bulb. Distinctive chrome decorative treatment is used.

Each of the new wide single bar bumpers carries two vertical guards. Bumpers have a novel raised panel in their center with the name "Cadillac" in script.

INTERIOR COMFORT

New richness is provided in the Sixty's interior. There are six upholstery selections in tan or gray Bedford cords, plain or ribbed broadcloths. These cloths are of even higher quality, comparable with the new Cadillac V-8. The pleated trim mode is used on the seat backs, while the seat cushions are plain.

Front Compartment: A noteworthy improvement to passenger comfort is the unobstructed front compartment floor. Since the shifting lever is now on the steering column, three people may ride on the front seat in entire comfort and without interference to the driver. In addition, the front floor is perfectly level in spite of its lowness.

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The Sixty has the new smooth instrument panel in which all knobs are recessed or flush with the panel's face. An electric panel clock is standard equipment.

The new cushioned front seat back which lends so much comfort to front seat passengers and safety to rear seat passengers is employed.

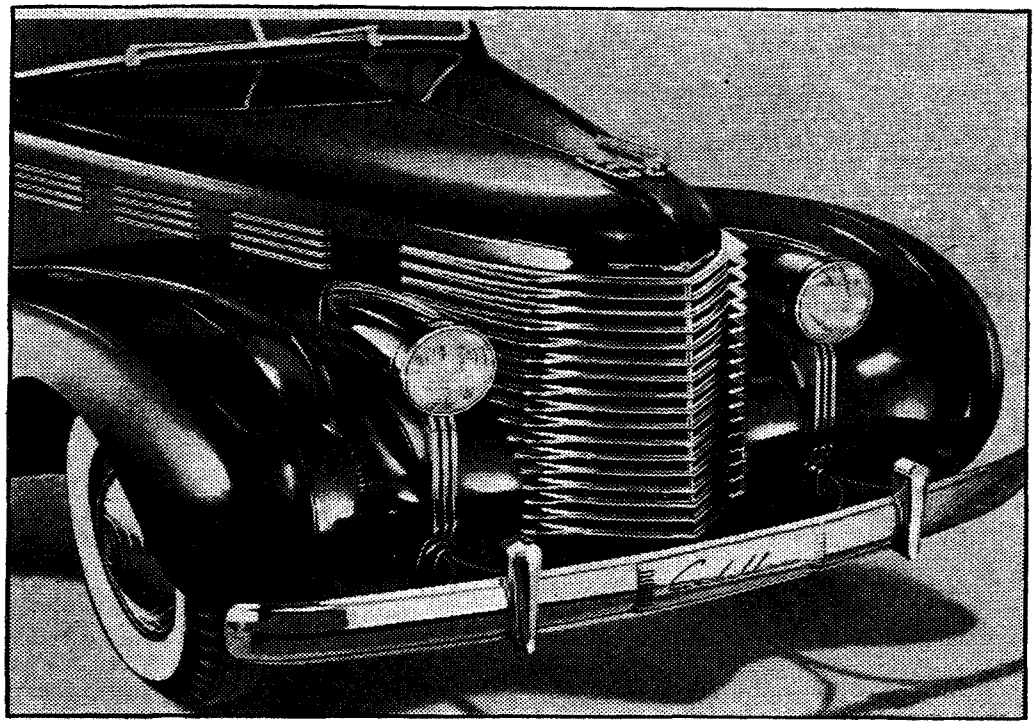
Rear Compartment: There are many additional features of Cadillac quality in the Sixty's rear compartment. Garnish mouldings and paneling are designed in the modern vogue and are finished in straight grain rosewood. There is a center arm rest in the rear seat back. Ash receivers are recessed in the side arm rests. Assist straps, robe cord and recessed foot rest are provided. The rear quarter windows may be pivoted outward as a part of the Individually Controlled No-Draft Ventilating System.

CADILLAC SIXTY SPECIAL

Cadillac presents another of its world-famous "Firsts" in the addition of the Cadillac Sixty Special 5-Passenger Sedan to the Sixty line of fine cars. Low, fleet, dynamic design is for the first time combined with the practical features of comfort, convenience and safety. The new Cadillac Sixty Special has more outward vision than any closed car ever built heretofore. This Cadillac is the most distinctive motor car of the year. No other make of car resembles it in any detail.

Exterior Appearance: From the front the lowness and extraordinary width of the Sixty Special are apparent. While the massive grille is similar to the other Sixties, it is even lower and wider. The windshield is higher and wider.

From the side the dynamic quality of the low lines which flow from radiator grille to streamlined tai



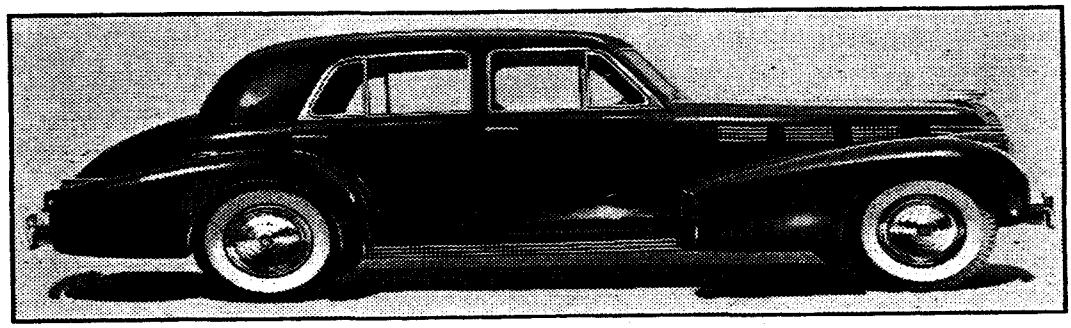
Sixty Special—Front View

are apparent. There are no running boards on the Sixty Special. The distance from the car floor to the ground is only 5/8 of an inch higher than from running board to the ground on the previous Series 60, hence one takes one easy step directly into the car. Instead of running boards, three parallel stainless steel mouldings finish off the lower edge of the body. The rear fenders are almost entirely within the body itself.

Road clearance for the Sixty and Sixty Special is nearly the same. The Sixty Special's complete body structure has been brought down to the low point of the chassis, primarily through the use of a double-drop frame.

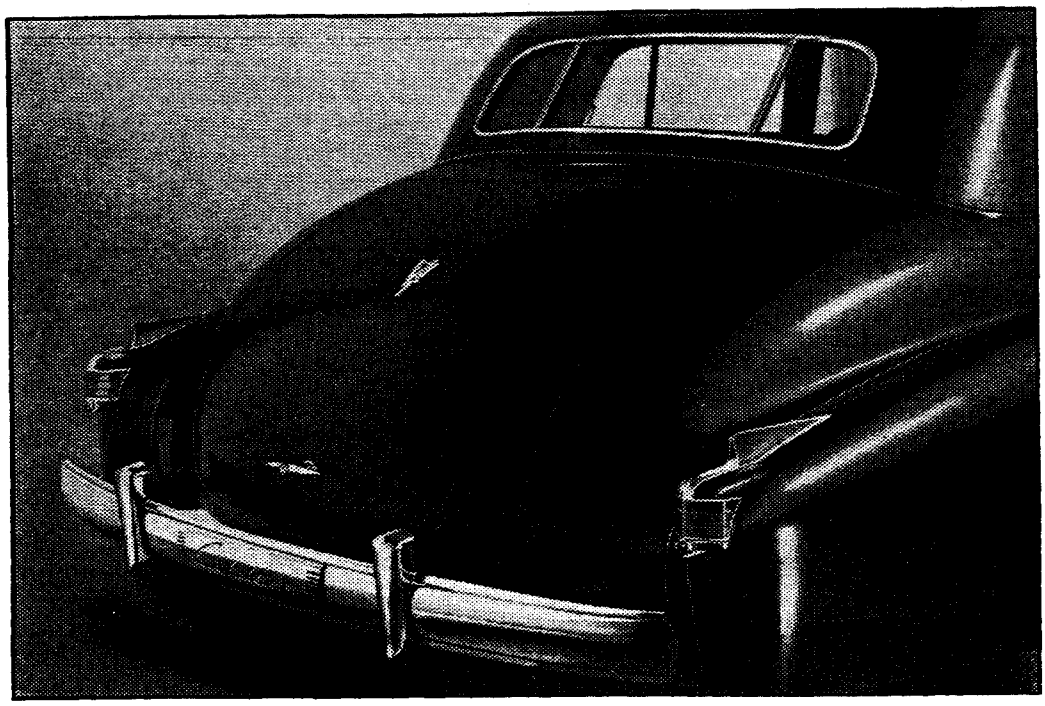
In order to achieve both lowness and extensive vision in the Sixty Special, several departures from conventional body construction have been made. One

of these is the construction and mounting of doors. The unusually wide doors are hinged at their fronts. The front door is hinged below the windshield pillar



Sixty Special—Side View

and the rear door is supported upon the center pillar. All hinges are below the body belt. Windows slide in narrow chrome frames. This permits a considerable reduction in the width of vision-obstructing pillars.



Sixty Special—Rear View

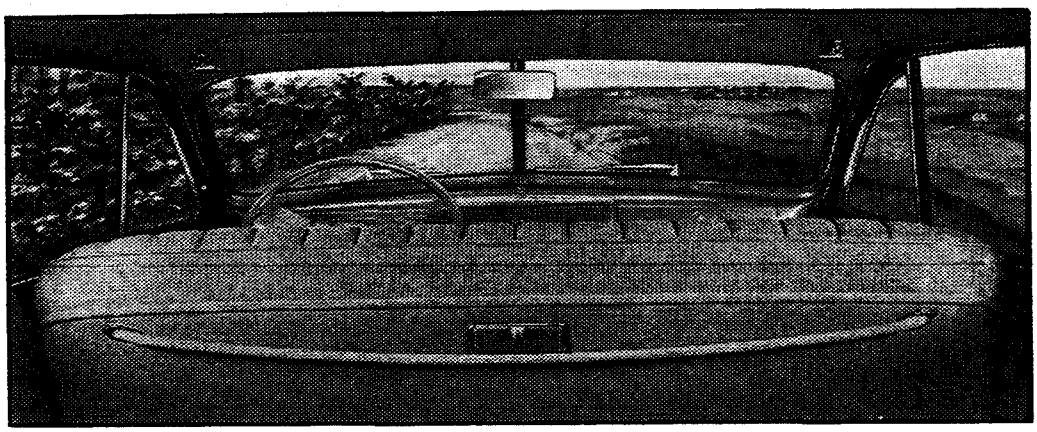
An unusual amount of "tumblehome" is apparent from the rear of the new Sixty Special. The curved sides of the body add to the ground-hugging appearance. The Sixty Special's graceful streamlined tail

suggests racing car speed, and conceals a luggage compartment of extraordinary capacity.

Tail lamps have a high, thin chrome wind vane which flows from the top surface of the rear fender in front of the tail lamp and merges into a decorative chrome moulding extending along the top center line.

INTERIOR LUXURY AND VISION

Entrance into the Cadillac Sixty Special is facilitated by the low floor, the absence of running boards and



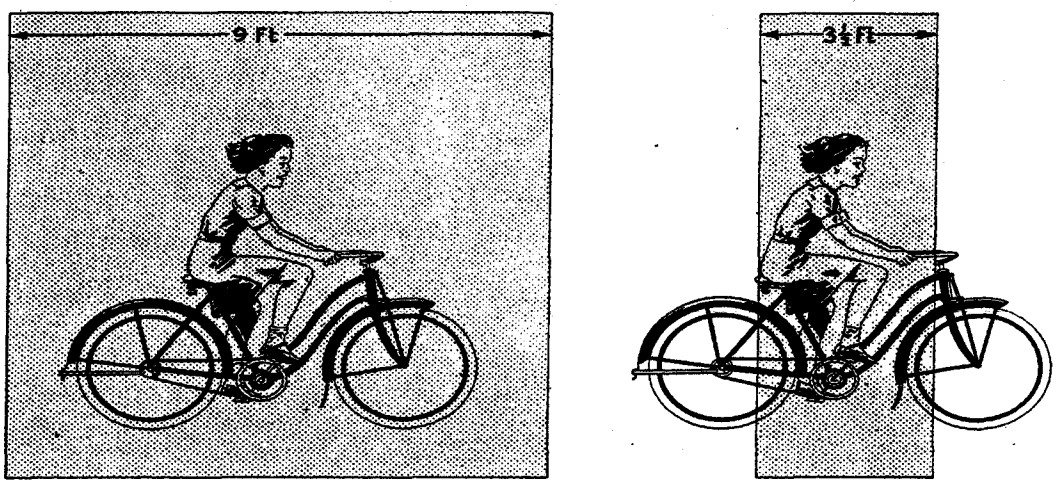
Extensive Outward Vision from within the New Sixty Special

the unusually wide doors. The front door is 3¾ inches wider and the rear door 8⅝ inches wider than last year's Series 60. These widths are greater than ever provided in any car of comparable wheelbase.

Vision: Within the new Cadillac Sixty Special one is aware of the extraordinary angles of outward vision. One reason for this is greatly increased glass areas. Windshield area has been increased 27%, front door window 53%, rear door window 34%. More important, however, than increased glass areas are the location of these areas and the removal of vision obstructions. Windshield and windows are higher relative to the seat cushions and permit a view upward

into an area heretofore restricted. This has been accomplished by carrying the windshield glass almost to the top of the body. The window frame construction, in which the door frame does not extend around the window, permits window glasses also to be carried much higher. The corners of windshield and window glasses have smaller radii which eliminate widening of vision obstructions near the glass corners.

Pillars are narrower. The windshield pillar width has been reduced by one inch. Taking into considera-



At 100 Ft. Distance the Conventional Windshield Pillar Obstructs 9 Ft. of Vision; the Sixty Special Pillar Only 3½ Ft.

tion the front door frame and the ventipane frame, the total width of the left hand pillar from the angle of the driver's eye is now only three inches. While this is a 25% reduction in pillar width, the far more important fact is that the obstruction to vision has been reduced 60%. This is because 2⅜ inches of the pillar width is equal to the interpupillary distance between the eyes, hence offers no obstruction to binocular vision. Consequently, the apparent obstruction of the three-inch pillar is in reality only ⅝ of an inch. Similarly, the four-inch pillar of conventional cars offers 1⅝ inches obstruction and obscures two and

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one-half times as much outward vision area as the new Sixty Special's three-inch pillars.

The over-all width of the body center pillar between front and rear door has been decreased. Structurally, the pillar itself remains two inches wide and there is no reduction in strength. Through the use of narrow chrome window frames there is are duction in over-all width of one inch.

As in the previous models, the windshield center division in all Cadillacs and LaSalle is less than two inches wide, hence is less than the interpupillary distance between the eyes and offers no obstruction to vision.

Rear Compartment: Passenger comfort has been greatly improved by the provision of more leg room and better seating position in both front and rear compartments. The tonneau is longer and the floor lower, relative to the seat cushion. The rear compartment foot rest is in the back of the front seat and is more comfortable because of its improved angle.

The body dimensions table on page 130 shows the rear seat to be four and one-half inches wider. The four-inch increase in shoulder width, however, is far more important to comfort than the increased hip width. Three average sized men require nine inches greater shoulder width than hip width. Also, this additional shoulder width has made possible the wider, more comfortable rear seat arm rests.

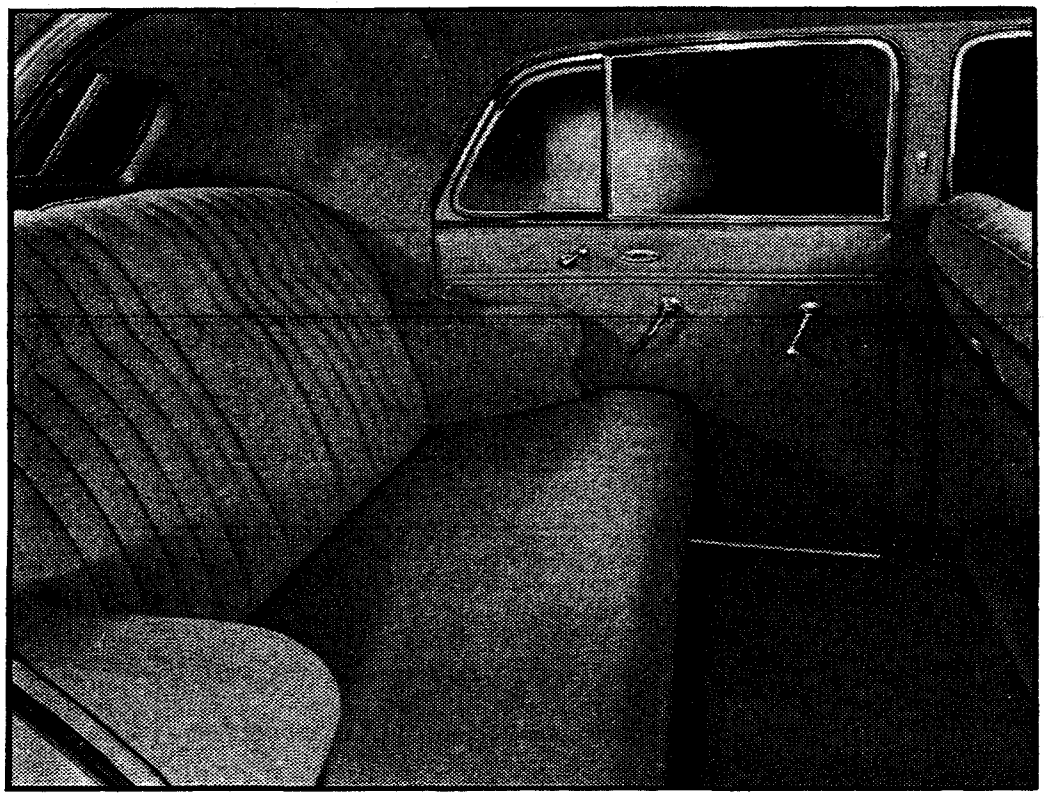
Interior luxury is everywhere in evidence in the new Cadillac Sixty Special as a result of new upholstery fabrics trimmed in a novel style. The seat backs are trimmed with numerous vertical pleats. Seat cushions are plain. Wide leather panels decorate and protect the upper portion of the door panels. A new

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thickly padded center arm rest has been added and provides lounge chair relaxation for two persons, if desired.

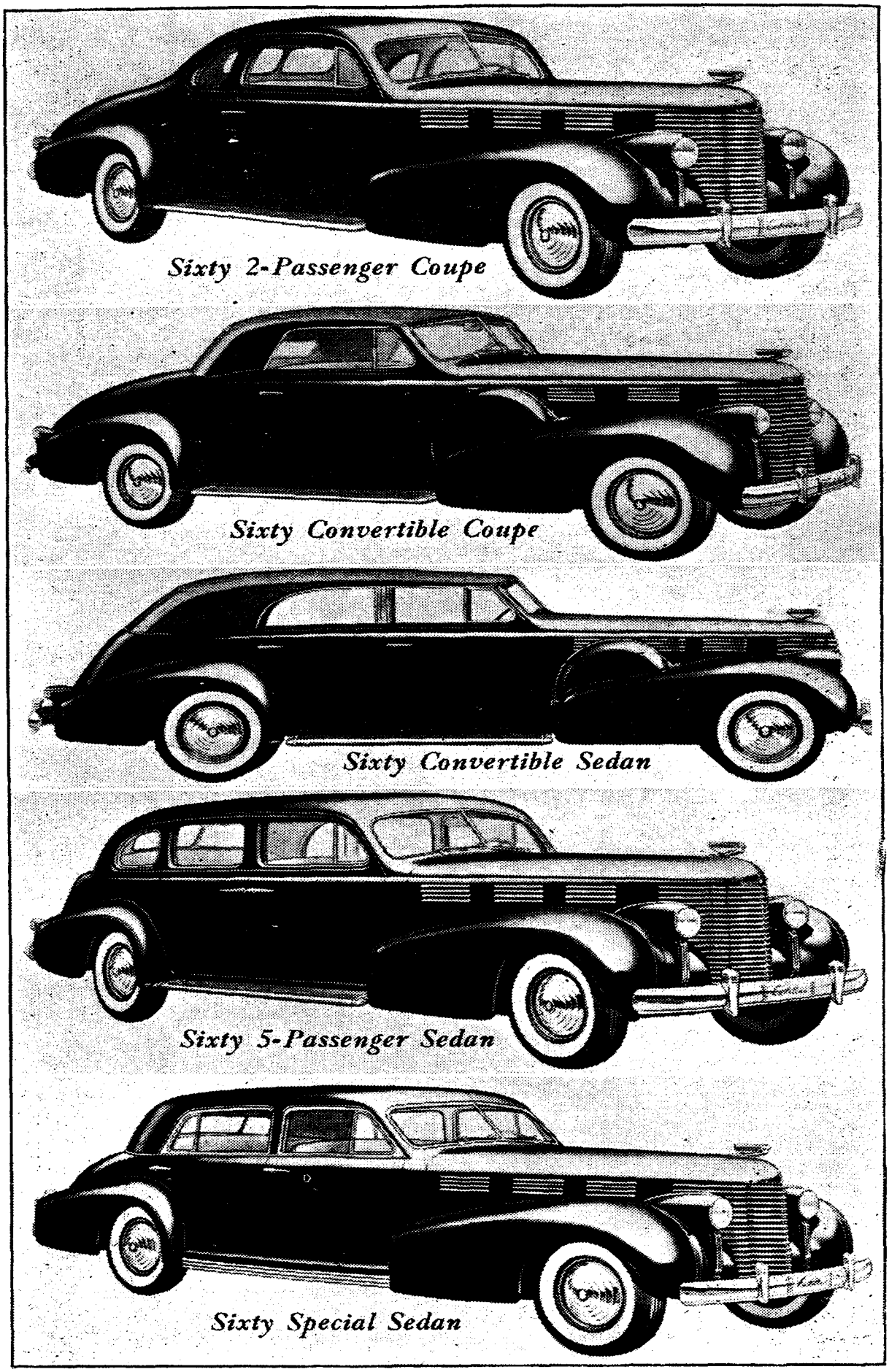
There is also a new neatly attached robe cord. A large ash receiver is mounted in the center of the front seat back.

Ventipanes in the rear door windows operate in the same manner as do those in the front to provide a constant flow of draftless fresh air throughout the rear compartment.



Sixty Special Rear Compartment

The rear compartment floor is also practically level in spite of the lower floors. There is merely a slight curvature in the center of the floor. In many cars the floor is not as low as in the Cadillac Sixty Special, yet high central tunnels are necessary. The absence of a tunnel is possible in the Sixty Special through careful hypoid rear axle design and the long transmission extension.



Sixty 2-Passenger Coupe

Sixty Convertible Coupe

Sixty Convertible Sedan

Sixty 5-Passenger Sedan

Sixty Special Sedan

CADILLAC SIXTY INTERIOR DIMENSIONS

	2-Pass. Coupe	Conv. Coupe	Conv. Sedan	5-Pass. Sedan	Sixty Special 5-Pass. Sedan
Front Seat Width (Hips)	53¼"	53¼"	52¾"	53¼"	59"
Rear Seat Width (Hips)			47¼"	47¼"	51"
Front Seat Width (Shoulders)	54"	54"	54"	54"	58"
Rear Seat Width (Shoulders)			48"	53½"	57"
Front Seat, Cushion to Floor	15⅜"*	14¼"*	14⅝"*	15¼"*	14⅞"*
Rear Seat, Cushion to Floor			15"	14⅝"	15½"
Front Seat Depth	18"	18"	17¾"	18"	18½"
Rear Seat Depth			20"	20"	20¼"
Dash to Front of Front Seat	26⅞"*	26⅞"*	25½"*	26⅞"*	26"*
Front Seat Back to Front Rear Cushion			13½"*	13½"*	14¼"
Front Seat Cushion to Clutch Pedal	19¾"*	19⅜"*	19½"*	19⅞"*	18⅞"*
Steering Wheel to Front Seat Cushion	6"	5⅞"	6 7/16"	6"	5¾"
Steering Wheel to Front Seat Back	14"*	14"*	12"*	13⅝"*	13⅝"*
Headroom—Cushion to Roof—Front	36¾"*	36¾"*	36¾"*	36¼"*	36¾"*
Headroom—Cushion to Roof—Rear			37"	36⅜"*	36½"
Headroom—Floor to Roof	48¾"	47"	49"	49"	50¾"
Inside Maximum Body Width	55¼"	55¼"	55¼"	55½"	61¾"
Front Door Width	41¼"	41½"	33⅝"	34½"	38"
Rear Door Width			27¾"	27½"	36"
Width Over Front Fenders	75¾"	75¾"	75¾"	75¾"	75½"
Width Over Rear Fenders	71¾"	71¾"	71¾"	71¾"	75⅜"
Overall Height, Loaded	67¾"	66¼"	66¾"	67¾"	65"
Overall Length, Bumper to Bumper	201 11/16"	201 11/16"	201 11/16"	201 11/16"	207¾"

*Dimensions taken with front seat in full rearward position. Seat may be adjusted 4" forward. Rear of front seat rises ¾" with 4" forward movement.

REVISED 12-15-37

CADILLAC CUSTOM V-EIGHT

Cadillac's Traditional Fine Car

The reputation of Cadillac in the fine car field and the long list of Cadillac owners of fifteen to thirty years' standing have been the evolutionary result of constant devotion to the building of large fine cars which provide all to be desired in roominess and comfort, yet have every engineering advancement conducive to ease of handling and outstanding performance.

The Cadillac Custom V-8, formerly the Series 65, carries on this Cadillac tradition. This motor car has been designed expressly for those who wish the feeling of security and stability which comes from large cars, yet insist on a maximum possible amount of meaneuverability. Other cars provide mere bulk, but bulk does not necessarily provide comfort and stability or fleetness and driving enjoyment.

More women drove large Cadillacs last year than ever before because of their superior ease of handling. The new Cadillac Custom V-8 makes an even greater appeal to their motoring pleasure with greatly increased driving visibility, greater performance and more effortless shifting by placing the lever on the steering column.

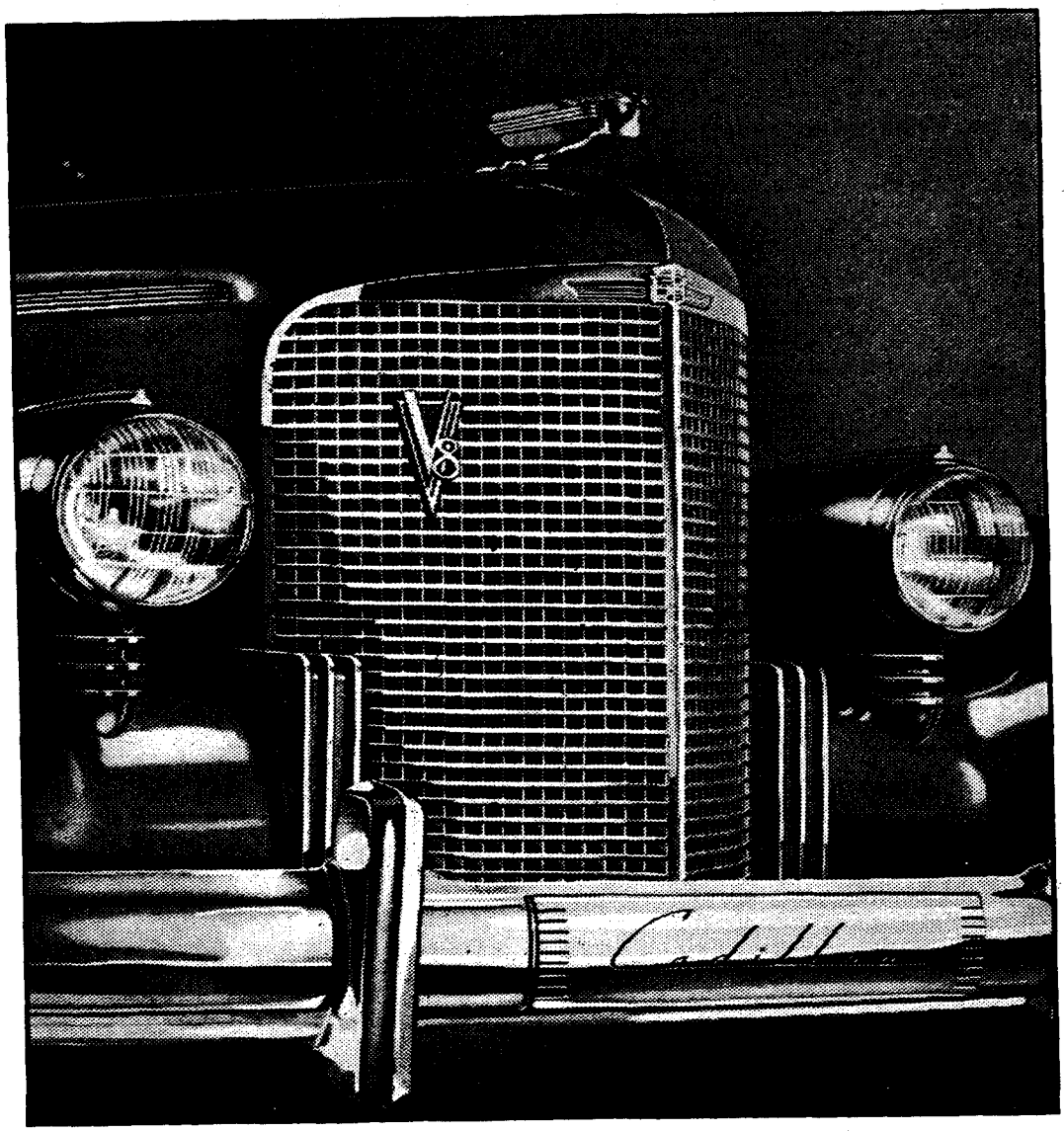
Yet, in addition to driving ease, roominess has also been improved by longer, wider, lower bodies. These are of all-steel construction.

The 1938 Cadillac Custom V-8 is available in three body styles. In addition to the five passenger Touring Sedan, there is a Sedan-Division and a Convertible Sedan, thus making available a wider selection of traditionally fine Cadillacs below the price of the more luxurious Fleetwood.

REVISED 12-15-37

EXTERIOR APPEARANCE

Front View: The overall appearance of the new Cadillac Custom V-8 has been freshened and modernized in accordance with Cadillac policy to maintain the most dignified style leadership among fine cars.

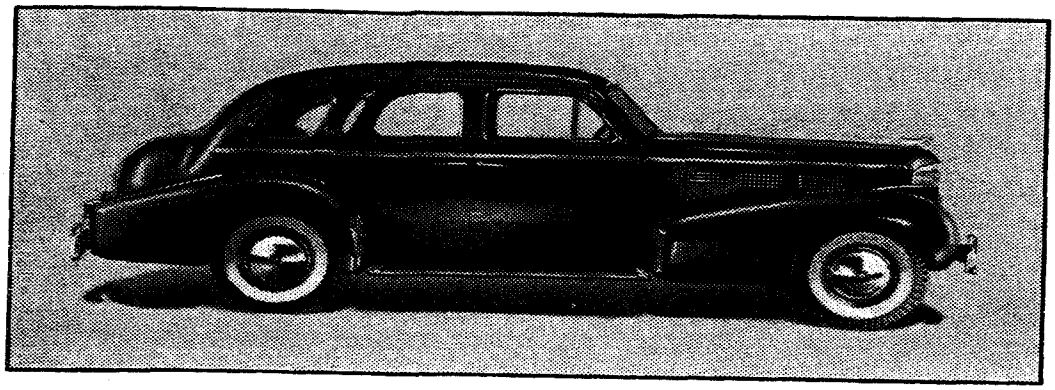


Cadillac V-8 Front View

From the front this new Cadillac is both distinctive and striking with wide, boldly designed cellular grille. The vee is deeply curved, flowing into the plane of the hood side panels in upper portion and the lower portion recurving outward into the plane of the fender fronts. Three chrome bars divide the junction of the radiator

grille from the fender fronts. There is a "V-8" monogram on the upper right side of the grille and a newly designed Cadillac crest at the top center.

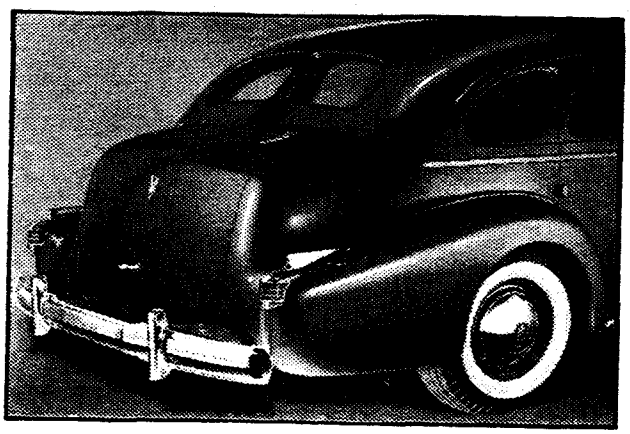
Headlamps are mounted to the fenders upon streamlined pillars carrying horizontal chrome mouldings which follow the curve of the streamlined nose.



Side View

Side View: From the side, the new Cadillac V-8 portrays dignified symmetry with its rear quarter pillar inclined at an opposed angle to the windshield. A new belt moulding, extending from radiator grille to back of the body accentuates the appearance of length. The moulding is placed below the inset panels which completely surround all three side windows.

Hood louvres are similar in novel treatment to those on the Cadillac Sixty providing a note of distinction on all Cadillacs.



Distinguished Rear Appearance

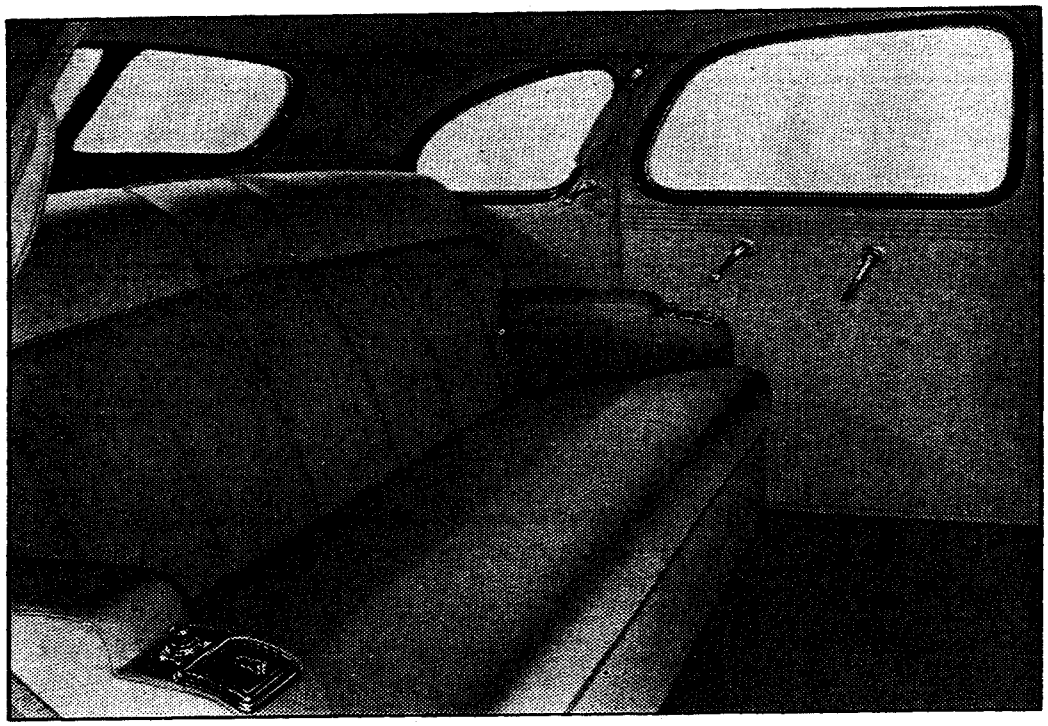
Running boards are separated from the fenders and are entirely rubber covered except for die-cast chromed

streamlined ends, in each of which are five thin longitudinal vanes.

Rear View: From the rear the Cadillac V-8 resembles a Town Sedan. In keeping with the dignity of the larger Cadillacs the two pane rear window of the Cadillac V-8 is plain without mouldings and the trunk is similar in design to the previous model though of much larger capacity.

INTERIOR ROOMINESS AND COMFORT

Higher, two and three-quarter inches wider doors greatly improve ease of entering or leaving the Cadillac V-8. In addition, seat cushions are not only wider at the



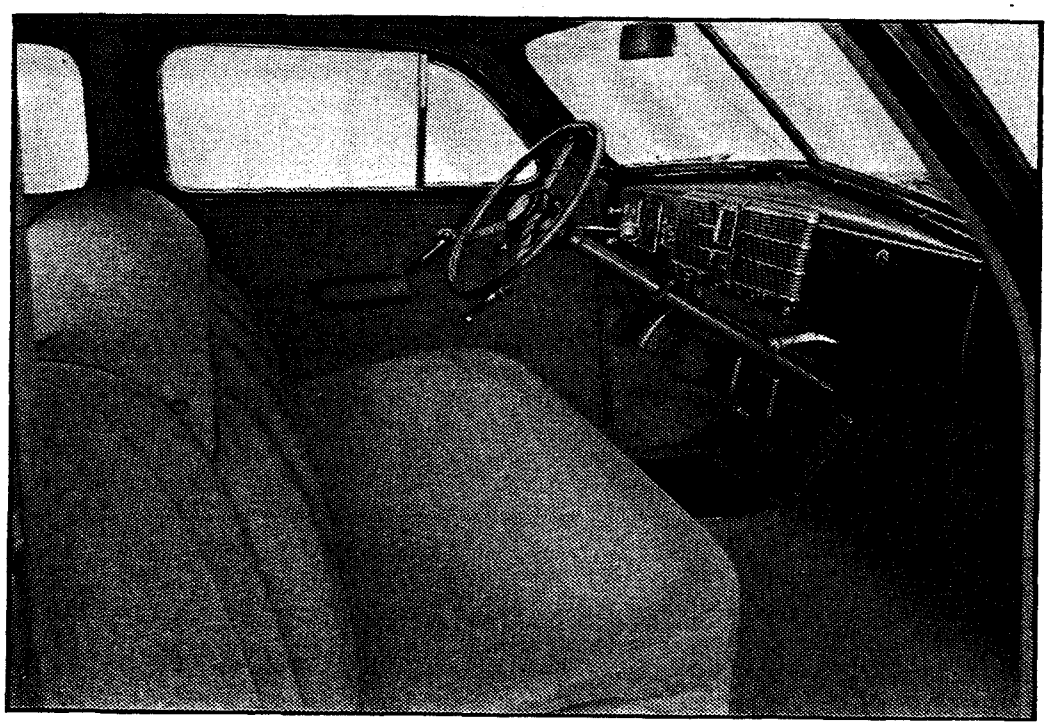
Spacious Rear Compartment

hips but are much wider at the shoulders. This important improvement in roominess amounts to an increased shoulder width of two and one-quarter inches in front, and four and one-quarter inches in the rear. Leg room also has been increased four and one-quarter

inches. The new Cadillac Custom V-8 is in fact a six passenger motor car.

Vision is by far the most noteworthy contribution to both greater comfort and safety. Glass area has been increased by 16%. Wider, higher windshield and higher windows have made this possible as a result of hypoid rear axles which permit lowered floors.

The same soft, lustrous upholstery fabrics of last year are used, but new trimming styles provide the interior with fresh appearance. Piping across each seat back about one-third of the way from the top forms a large comfortable bolster roll above. Below the piping the seat back cushion is vertically pleated. Seat cushions are plain and have Marshall springs. An attractive door panel treatment consists of wide, flat welts arranged in a modern geometric pattern.



Wide Front Compartment

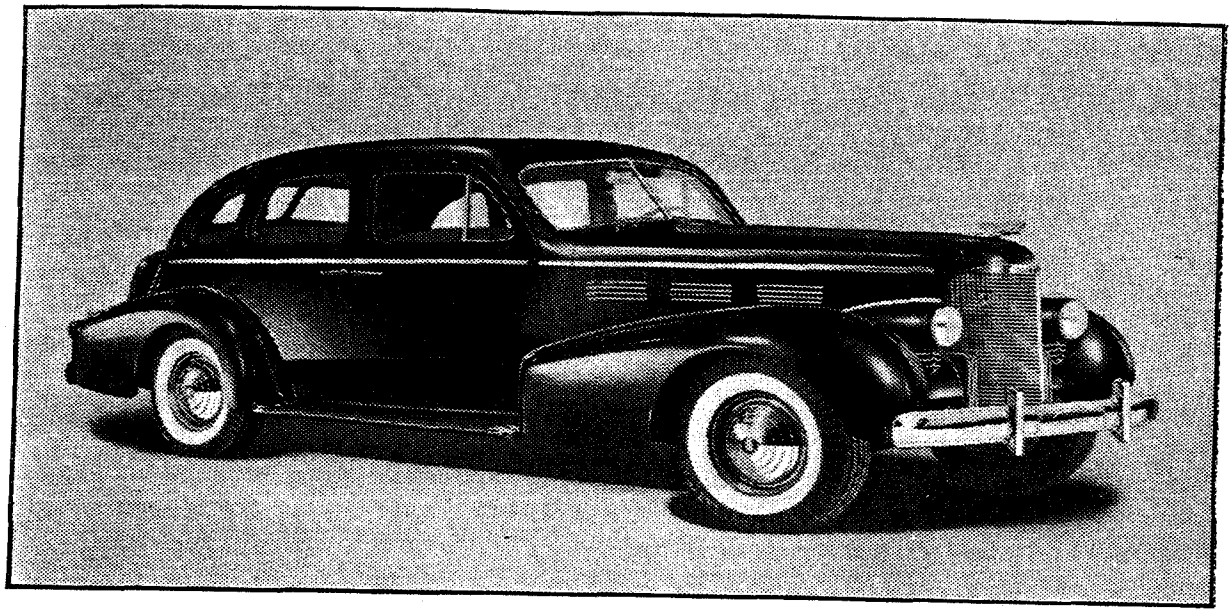
Despite lowered floors, there are no tunnels front or rear. The rear floor appears level, although actually it is slightly crowned. While other cars with low floors

have high, protruding transmission and propeller shaft housings, these are eliminated in Cadillac V-8 by a long transmission extension and the hypoid rear axle.

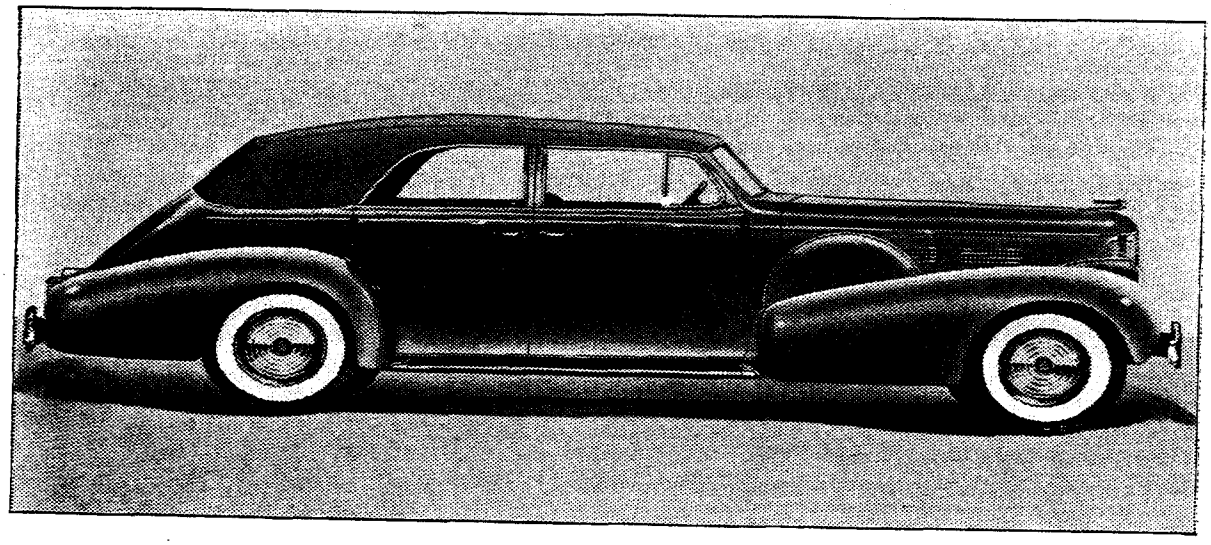
The Cadillac Custom V-8 employs the beautifully curved instrument panel with recessed knobs. Interior appointments include new, more comfortable arm rests made possible by wider seats. A rear seat center arm rest has been added. There are ash receivers and cigar lighters in each rear side arm rest, carpet covered robe rail and foot rest. Assist straps are attached by a novel flexible spring which holds the straps at a corresponding angle with the inclined pillar post. Each single pane rear quarter window slides rearwardly providing a ventilating opening of as much as three and one-half inches if desired.

The new Cadillac Custom V-8 Sedan-Division has a glass division without header panel within the front seat back. The front compartment is upholstered and trimmed to match the rear tonneau.

REVISED 12-15-37



The Cadillac V-8 5-Passenger Sedan



The Cadillac V-8 Convertible Sedan

CADILLAC CUSTOM V-8

Interior Dimensions

	Touring Sedan	Sedan-Division	Conv. Sedan
Front Seat Width (Hips)	54¾″	55⅜″	54¼″
Rear Seat Width (Hips)	52″	50″	51½″
Front Seat Width (Shoulders)	56¼″	56″	56¼″
Rear Seat Width (Shoulders)	57¼″	57¾″	50¼″
Front Seat, Cushion to Floor	15⅛″*	14¾″*	14½″*
Rear Seat, Cushion to Floor	16¼″	14⅞″	15⅛″
Front Seat Depth	18⅞″	18½″	19¾″
Rear Seat Depth	20⅜″	20¾″	20¾″
Dash to Front of Front Seat	26⅞″*	25 11/16″*	25⅞″*
Front Seat Back to Front Rear Cushion	19⅛″*	14⅞″*	19¼″*
Front Seat Cushion to Clutch Pedal	17½″*	15¾″*	17″*
Steering Wheel to Front Seat Cushion	5⅝″*	6″*	6 5/16″
Steering Wheel to Front Seat Back	14″*	12¾″*	13⅞″*
Headroom—Cushion to Roof—Front	37″*	37½″*	35½″*
Headroom—Cushion to Roof—Rear	35⅞″	38″	35½″
Headroom—Floor to Roof	52⅜″	51¼″	51⅛″
Front Door Width	38¾″	38¾″	39½″
Rear Door Width	32¼″	32¼″	28½″
Trunk Capacity—Cu. Ft.	21.5	21.5	12.6
Width Over Front Fenders	76 5/16″	76 5/16″	76 5/16″
Width Over Rear Fenders	77⅝″	76⅞″	76 5/16″
Overall Height, Loaded	69⅝″	69⅝″	68″
Overall Length, Bumper to Bumper	211 5/16″	211 5/16″	211¼″

*Dimensions taken with front seat in full rearward position. Seat may be adjusted 4″ forward. Rear of front seat rises ¾″ with 4″ forward movement.

REVISED 12-15-37

CADILLAC FLEETWOOD

Most Magnificent Among Fine Cars

The Fleetwood Body Corporation is one of the oldest and most experienced coachwork builders in the industry. Completely removed from all mass production influences, Fleetwood's skilled personnel have devoted themselves consistently to their craft for nearly thirty years. The extreme capability of these craftsmen long



The Home of Fleetwood

won for Fleetwood a position of world renown in coach building analogous to the recognition of Cadillac as Standard of the World in motor car engineering design. Fleetwood has been privileged to initiate and create personalized coachwork designs for the world's most notable personages to their most exacting requirements. Fleetwood history prior to 1927 was one of intimate association with such motor car builders as Rolls Royce, Hispano-Suiza, Isotta Franchini and with all American fine car builders as well. Among the coachwork builders, Fleetwood is one of the most outstanding of them all.

Cadillac is now in its tenth year of exclusive associa-

tion with Fleetwood, thus complementing its superlative engines and chassis and providing Cadillac-Fleetwood owners with the finest and most luxurious coachcraft obtainable. Cadillac is the only fine car today offering custom coachwork for the lowest investment!

The outstanding features of individuality and distinction for which Fleetwood craftsmanship has long been famed reach new peaks of reality in the Cadillac Fleetwoods for 1938. These fine cars have more generous roominess in every dimension and more luxurious appointments than have ever been provided in a motor car before. The most fastidious of fine car customers will be unusually pleased, for the new Cadillac Fleetwood reflects so much visible luxury and such scrupulous attention to minute detail over all other fine cars that those who desire highest quality will really want Fleetwood this year.

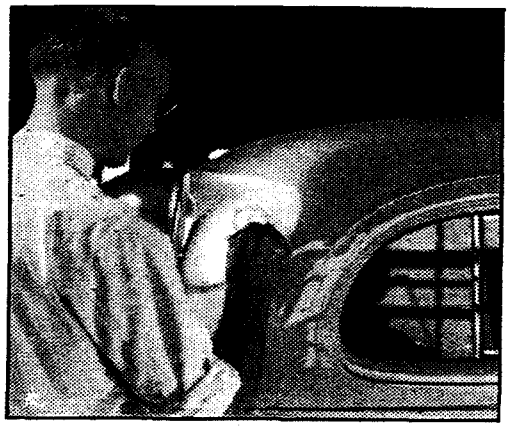
Steel Coachwork Construction

Fleetwood has always devoted a great deal of attention to the most advanced and progressive methods of coachwork fabrication. Fleetwood was the first to provide custom coachwork with the one-piece steel Turret Top, the greater safety and comfort of which far surpassed the old style fabric and wire mesh top construction.

The Turret Top is employed on all enclosed Fleetwood types, including the Formal Sedans and Town Car. Leather is applied over the steel in these models. The newest and most important advancement in coachwork construction is the introduction of an all-steel structural body by Fleetwood this year. The safety of steel is now combined with the luxuriousness of interiors in every Cadillac Fleetwood. In order to provide individuality in style and design among the various custom types, wood is used in body sills and in rear

door and trunk lid frames. Every structural member contributing to strength and rigidity is of highest grade steel.

Fleetwood Inspection



Fleetwood coachwork includes most thorough weather and sound insulation. Two noteworthy improvements have been made for 1938. A heavy rubber mold is cemented to the inner top position and completely down the back wall of the trunk. The mold prevents transmission of sound to the interior of the car.

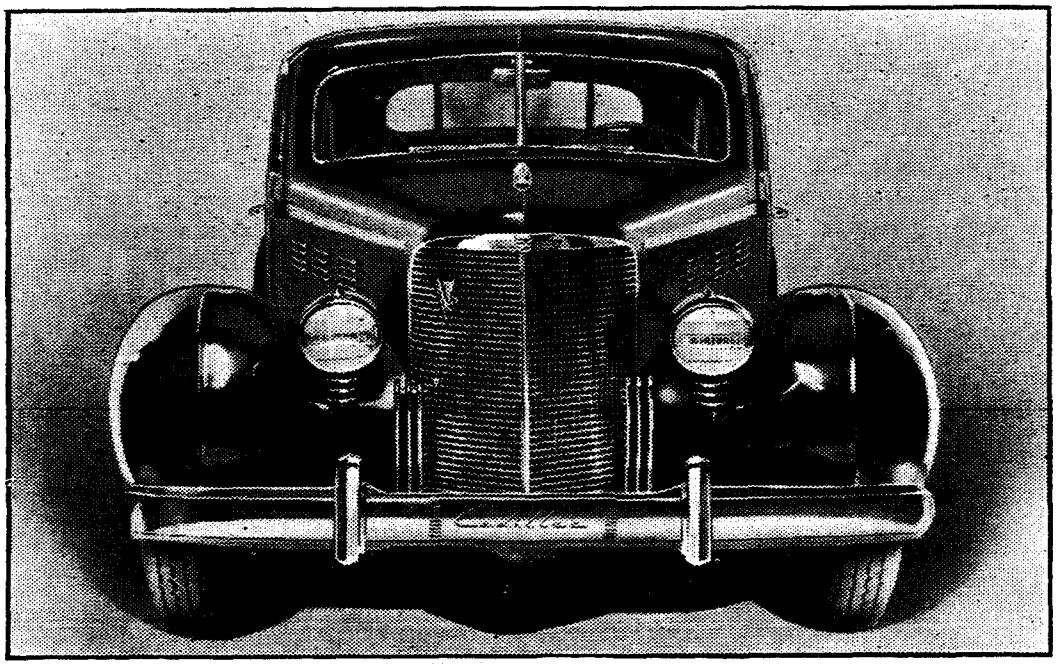
Two thicknesses of asphalt treated felt are applied to the solid steel floor for protection against heat and cold. The floor is also scientifically indented against sound resonance and these identations are filled with felt material. Covering the floor insulation is the new heavy pile plush carpeting which provides weather insulation as well as rich atmosphere in the rear compartment.

The combination of all-steel construction, Turret Top and thorough insulation and sound proofing provide the Cadillac Fleetwoods with a degree of safety and comfort exclusive among fine cars.

DIGNIFIED STYLING

The luxuriousness of Fleetwood coachcraft is apparent in their exterior styling. One is at once impressed with the modern dignity of the new Fleetwoods and their generous proportions about which there is no air of

cumbersomeness so typical of other large cars. Greater over-all length, longer, wider, lower coachcraft and, more important, extremely great glass areas in windows and windshield are all combined to give the new Fleetwood an exterior appearance of a truly fine car. The new Cadillac Fleetwoods are the most distinctive in appearance among all fine cars. They resemble no other fine car in any detail.



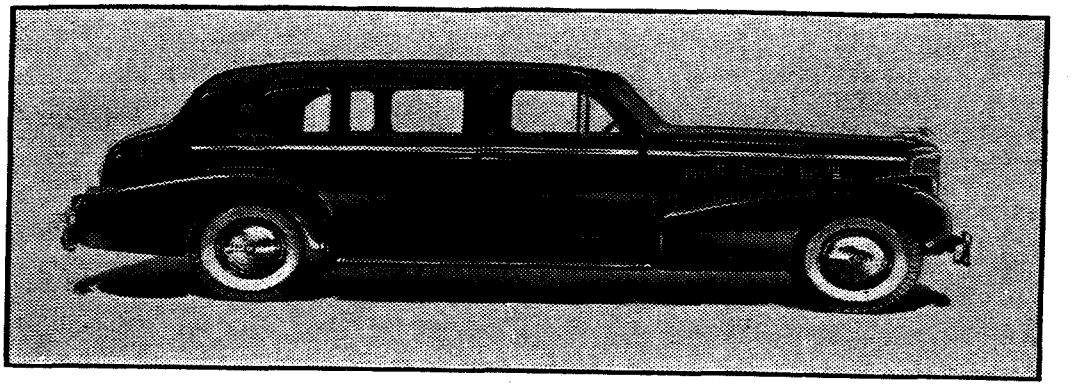
Fleetwood Frontal Appearance

At the front the radiator grille is wider, more massive and boldly designed. The vee is deeply curved, flowing into the plane of the hood side panels at the top, but recurving outward into the plane of the fender fronts in the lower portion. Three vertical chrome bars divide the junction of the radiator grille from the fender fronts.

Headlamps are long and streamlined. Although mounted upon the massively sweeping fenders, they actually appear to be partially submerged within them.

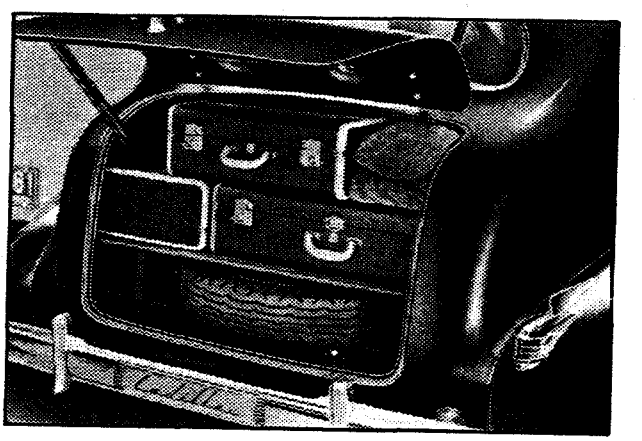
The windshield is higher, wider, outlined in chrome and slopes rearwardly at an angle of 39° into the Turret Top.

Drip mouldings over the windows and down the windshield pillar are continued while a new, larger drip shield not only prevents rain dripping into the ventilator opening but also shields the opening from the front by extending downward along the front edge.



Distinctive Side View

A new belt moulding extends from the radiator grille to the extreme rear of the car, accentuating the appearance of length. It is narrow at the front and has two



A Built-in Trunk of Beauty and Utility

grooves, widening gradually as it passes along the length of the hood and reaches its widest dimension along the doors. Here the moulding is plain, the grooves recommencing at the rear of the rear doors and tapering narrowly toward the ends.

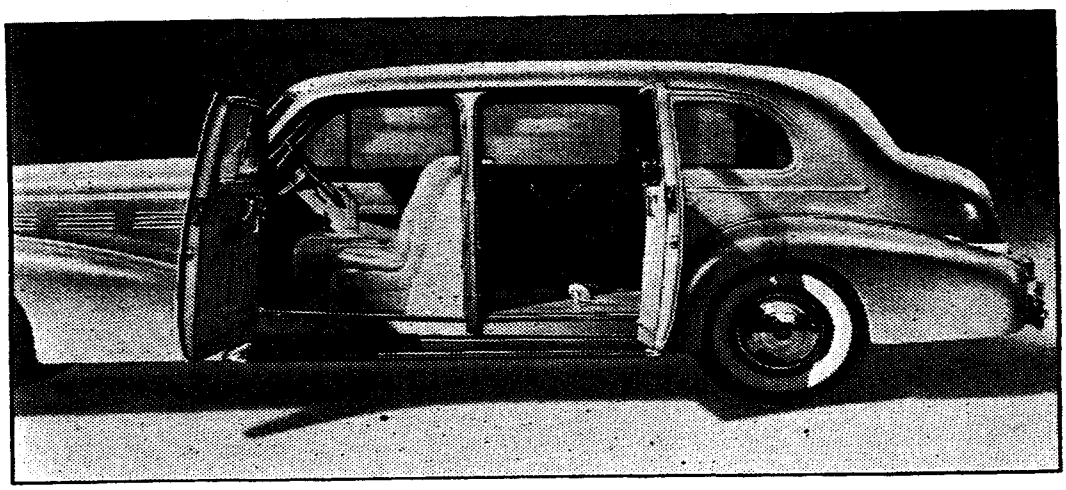
Running boards are separated from the fenders to prevent collection of dirt and water thrown by the wheels in wet weather. They are completely rubber covered except for die-cast chromed ends.

At the rear the new Fleetwoods provide built-in trunks of even greater spacious capacity than before. The lid has an improved design of supporting arm which is stronger and operates more easily.

A three-pane rear window distinguishes Cadillac Fleetwood at the rear.

LUXURIOUS ROOMY INTERIORS

For 1938 Fleetwood provides greatly advanced passenger comfort. Every interior dimension is greater than ever provided in a Cadillac before.

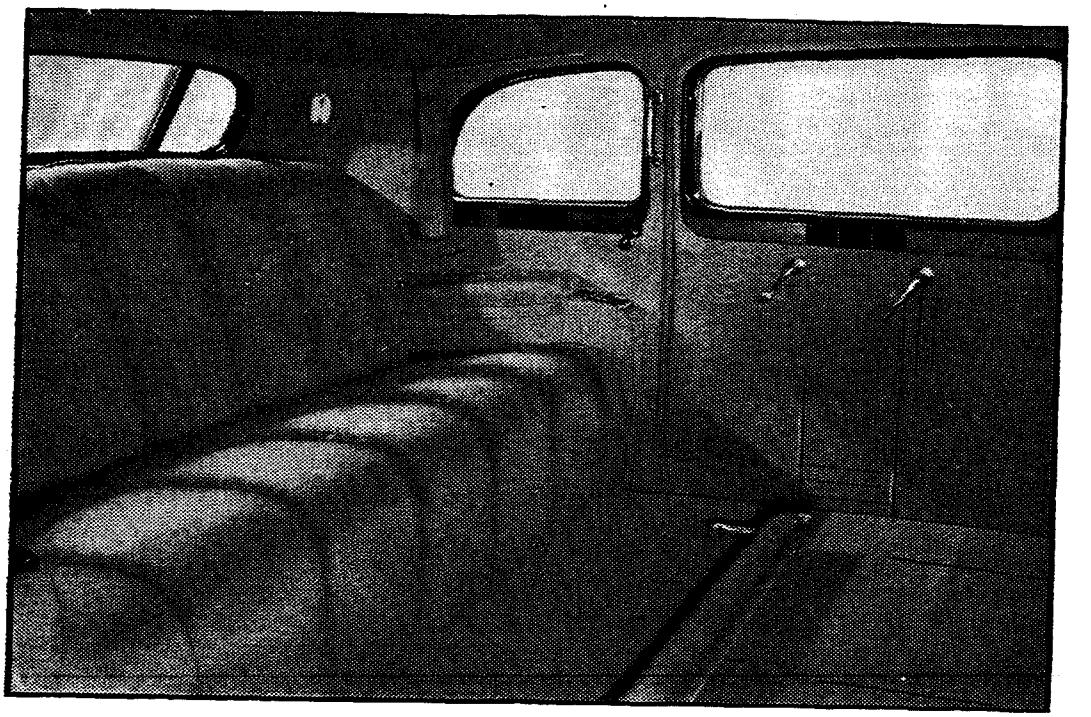


High, Wide Doors for Ease of Entrance

Entrance into the new Fleetwoods has been facilitated by larger doors. The rear door in particular is six and three-quarter inches wider. More important, they are higher, making it possible to walk into the car without stooping. This unusual height is made possible by lower floors and maintenance of the same over-all car height as before.

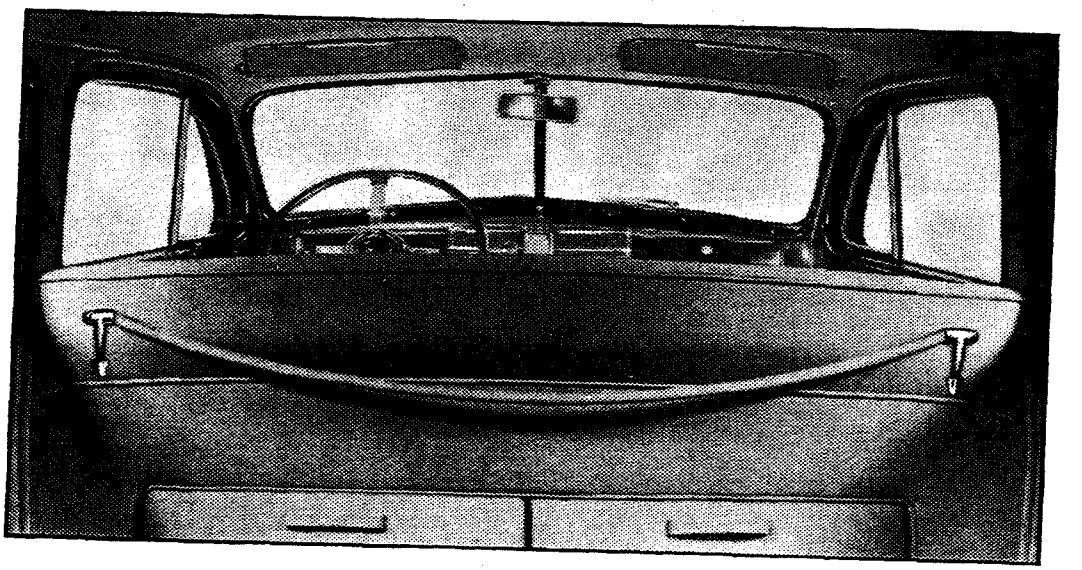
Increased wheelbase has been utilized to gain three

inches more tonneau length and leg room. Of equal importance are the greatly increased seat widths, both in front and in the rear. Rear seat shoulder width has been increased almost four inches over the former generous



A Wealth of Luxury and Comfort in the Rear Compartment

allowance which permits entire freedom of movement for even three large persons. Comfort is still further

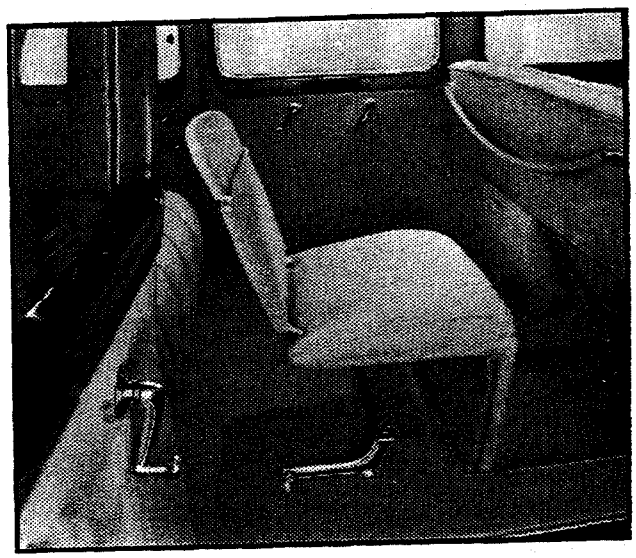


Extensive Vision

increased by higher seat cushions and two and one-quarter inches greater over-all head room.

Looking outward from the new Fleetwood interior, vision for passengers and the driver is greater by far than ever before. This advancement is of immeasurable importance to driving safety as well as to riding enjoyment.

Another notable interior improvement is in the auxiliary seat construction of Seven-Passenger Sedans and Imperials. Through a new design the thickness of the front seat back has been reduced which adds to rear compartment length and increases the effective width of the rear door. The auxiliary seats now fold flush into a depression in the seat back, giving a neat paneled appearance and avoid the necessity for annoying and unsightly zipper flaps or latched covers. The seats which, when down, give every appearance of being two panels in the front seat back, are raised by merely pulling rearwardly on strap handles. When raised the auxiliary seats provide unique comfort. There is more



New Auxiliary Seats for 7-Passenger Sedans

leg room for the auxiliary seat passenger. There is sufficient foot space to permit easy access into the seats from outside the car. The seats are wider and meet in the center. The new folding back construction permits higher, more comfortable seat backs.

An electric clock for the rear compartment has been

added to the luxurious Fleetwood equipment. The clock is mounted in the center of the front seat back on a wood garnish panel. This panel extends the full width of the seat back of all Imperial Sedans, Imperial Formal Sedans, Town Cars and Convertible Sedans with glass division. In Five-Passenger Formal and Town Sedans the clock is mounted in the cloth in the center of the front seat back.

Natural burled and straight grained walnut is used in a new pleasingly modern design for door panels and garnish mouldings. The new instrument board is dark brown with harmonizing plastic center panel and burled walnut finish on the instrument group panel and glove box door.

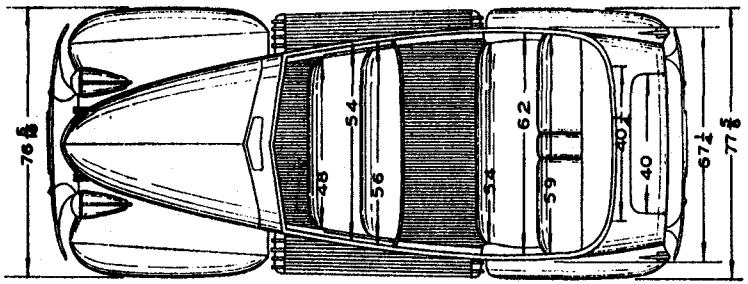
The softness and high lustre of upholstery fabrics which lend such a rich atmosphere to the Fleetwood interiors are the result of special textiles manufactured to Fleetwood specifications. Only 100% imported Australian virgin wool is used because its longer fibre produces the finest and softest cloths. Fabrication requires an extended period of time under controlled temperatures and humid air. The finished cloth is then allowed to set and is actually cured, resulting in the most lustrous fabrics of highest quality.

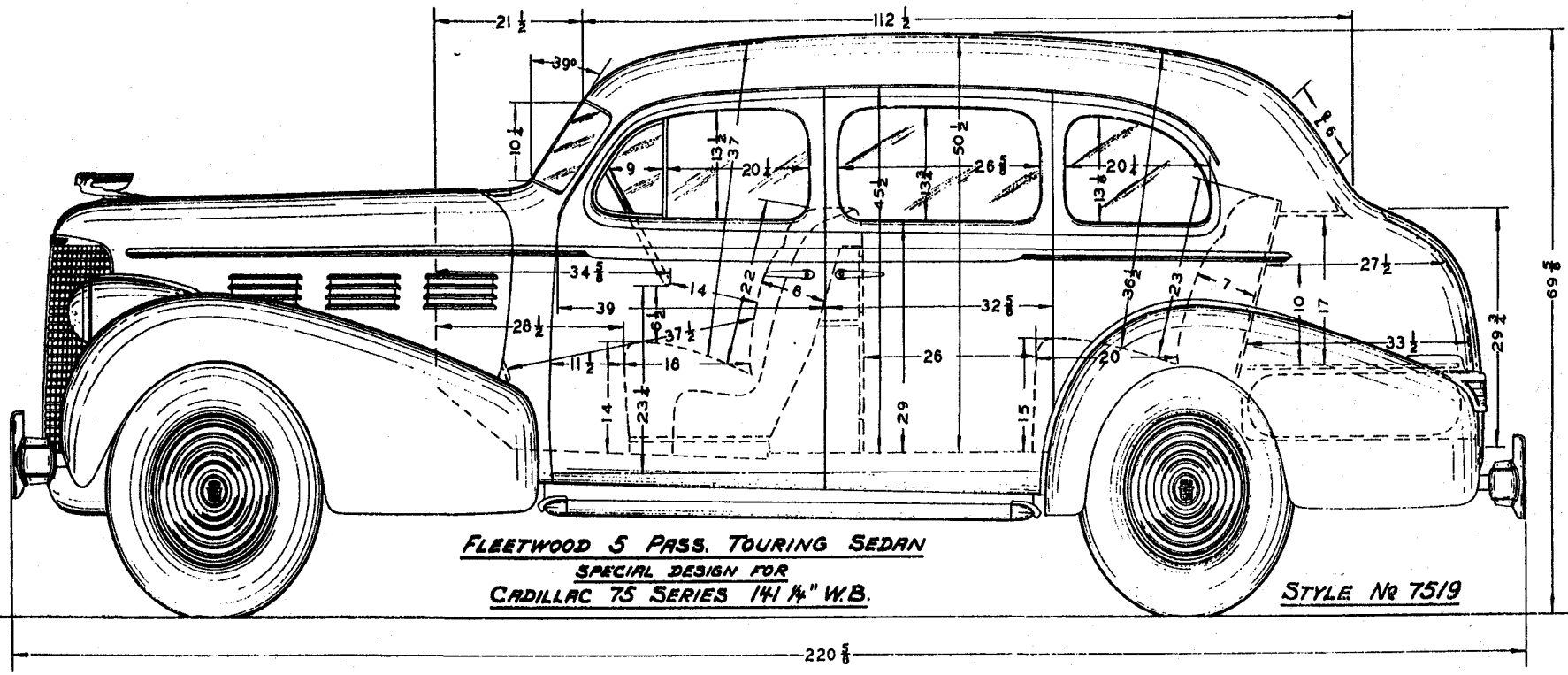
The new fabrics for Fleetwood are in seven exclusive Weise patterns and cannot be duplicated. The pleated trim mode is used which is the most luxurious style of trimming yet designed.

Both front and rear compartment seat cushions and backs are fitted with Marshall springs padded with lamb's wool. Only by sinking into the soft depths of these resilient cushions can the full measure of comfort of their construction be realized.

In spite of much lower floors they are level and completely and snugly covered with plush carpeting.

FRONT SEAT MOVES 4" FROM
REAR POSITION SHOWN





FLEETWOOD 5 PASS. TOURING SEDAN
SPECIAL DESIGN FOR
CADILLAC 75 SERIES 141 1/4" W.B.

STYLE No 7519

CADILLAC FLEETWOOD

5-PASSENGER SEDAN

STYLE NO. 7519

Equipment and Appointments

Rear Quarters: Metal with quarter windows.

Front Seat: Entire front seat cushion and back rest adjustable 4″. Seat cushion has ¾″ rise. Seat frame integral with center body pillars.

Rear Seat: Seat cushion and seat back stationary.

Lighting: Dome light operated by curb-side rear door and left rear pillar switch. Also corner lights, switch on right rear pillar.

Windows: Front door windows are equipped with individually controlled ventilator feature. Rear quarter window moves rearwardly 3½″. All windows Security Plate Glass.

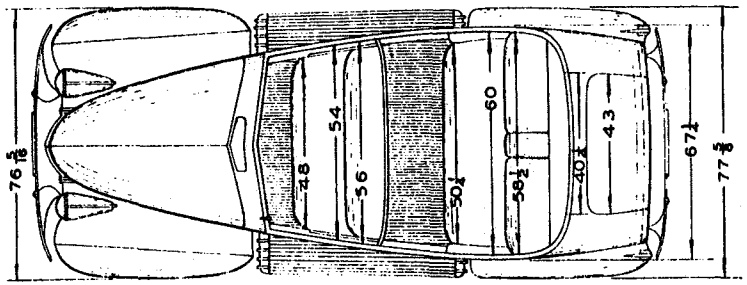
Interior Panels: Burled and plain walnut combined in pleasing pattern.

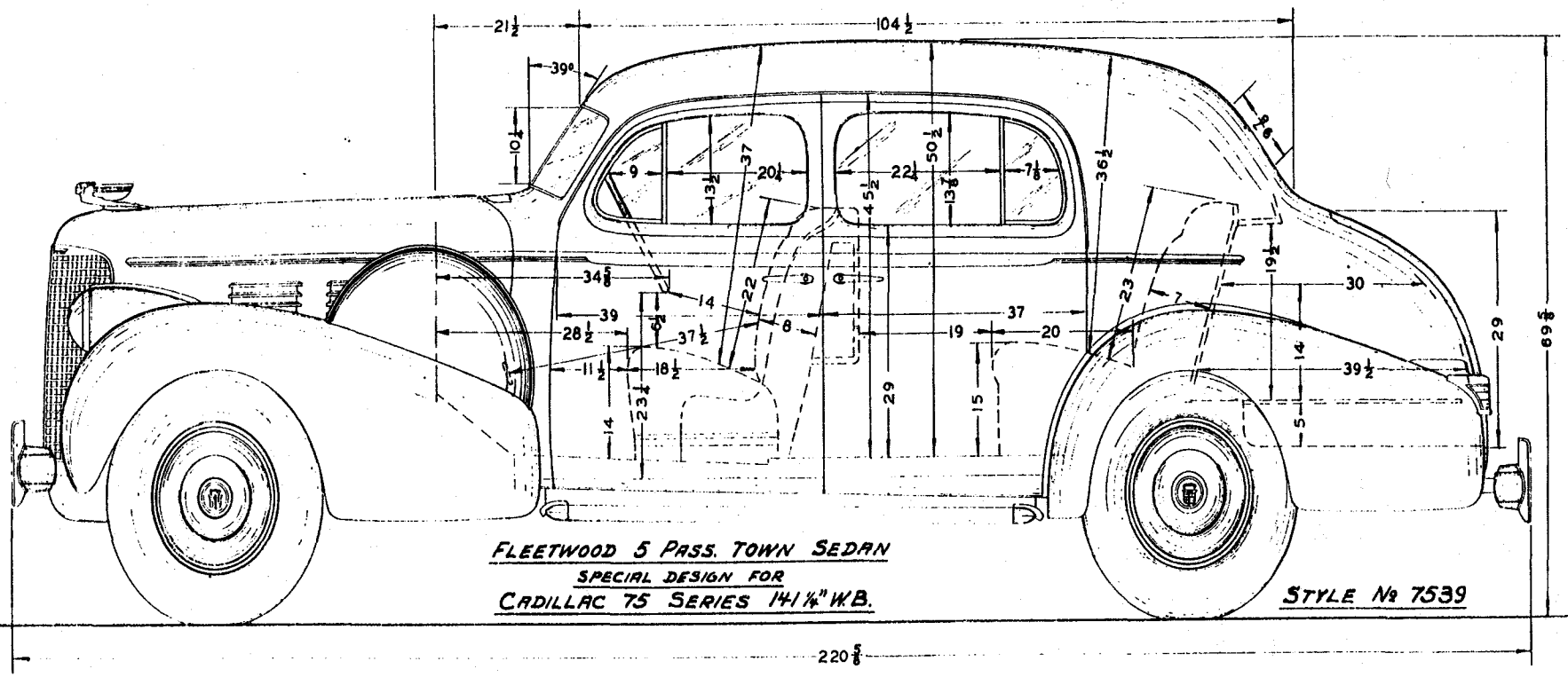
Trim: Seven Weise cloths; tan or gray; exclusive patterns; pleated mode.

Smoking Equipment: Two ash receivers and two pass-around lighters located at front of rear compartment side arm rests; pass-around lighter in instrument panel recess; ash receiver in right center instrument panel grille.

Equipment: Two triangular shaped spring type foot hassocks, plush carpet covered to match floor carpet; silk curtain for rear window; two assist straps located on right and left hand rear pillars; two interior sun visors, fully adjustable; folding center arm rest in rear seat back, side arm rests in rear compartment and on front doors; slash pocket on inside of each arm rest in rear compartment; two package compartments in back of front seat; robe cord.

FRONT SEAT MOVES 4" FROM
REAR POSITION SHOWN





FLEETWOOD 5 PASS. TOWN SEDAN
SPECIAL DESIGN FOR
CADILLAC 75 SERIES 141 1/8" W.B.

STYLE No 7539

CADILLAC FLEETWOOD

5-PASSENGER TOWN SEDAN

STYLE NO. 7539

Equipment and Appointments

Rear Quarters: Full metal back.

Front Seat: Entire front seat cushion and back rest adjustable 4". Seat cushion has ¾" rise. Seat frame integral with center body pillars.

Rear Seat: Seat cushion and seat back stationary.

Lighting: Dome light operated by curb-side rear door and left pillar switch; two rear corner lights operated by right pillar switch.

Windows: Front and rear doors are equipped with individually controlled ventilation feature. All windows Security Plate Glass.

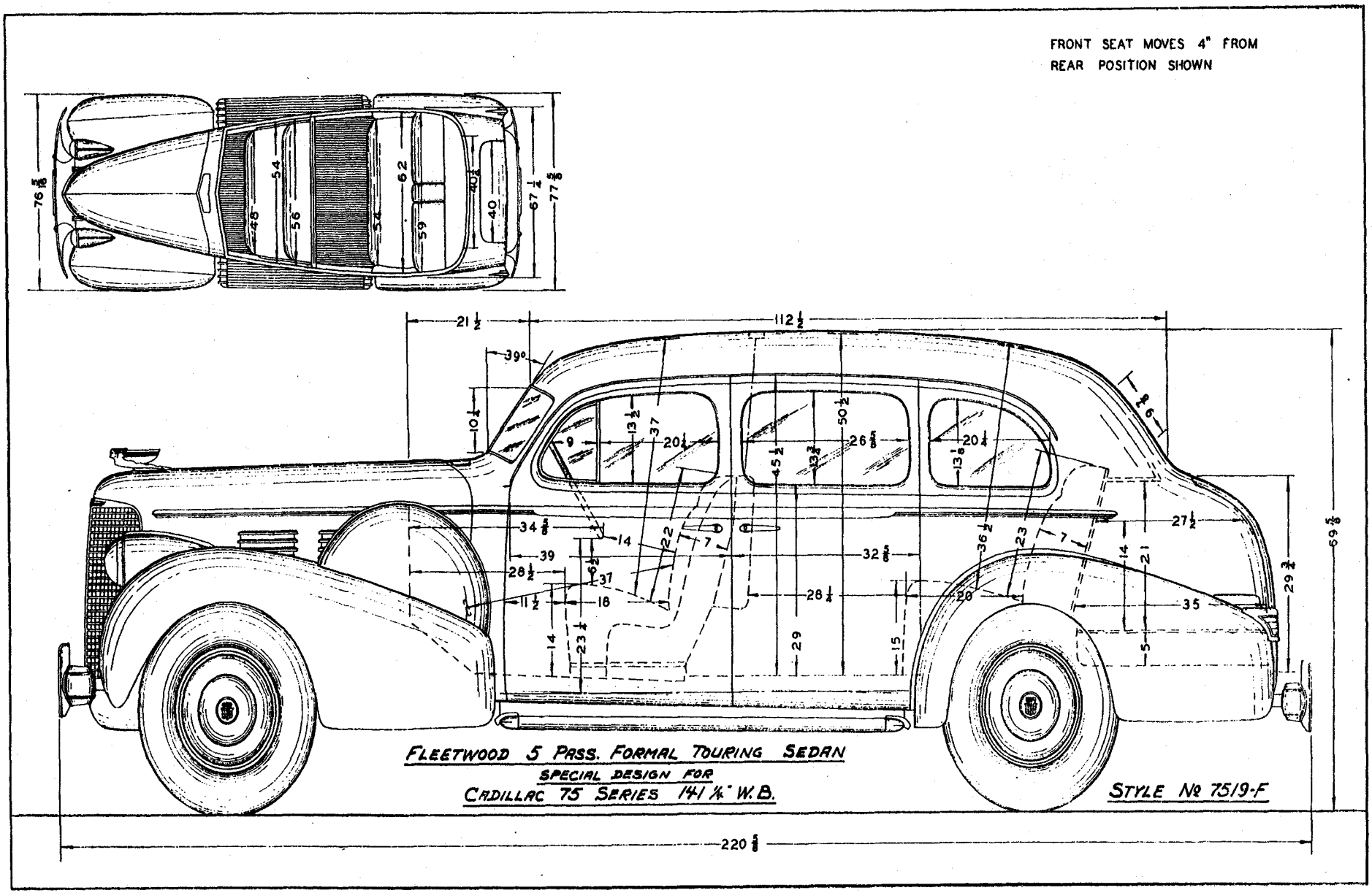
Interior Panels: Burled walnut and plain walnut combined in pleasing pattern.

Trim: Seven Weise cloths; tan or gray; exclusive patterns; pleated mode.

Smoking Equipment: Ash receivers recessed in rear arm rests; ash receiver front compartment, in right center instrument panel grille; two pass around lighters in front of rear ash receivers, also recessed in instrument panel.

Equipment: Two triangular shaped spring type foot hassocks, plush carpet covered to match floor carpet; silk curtain for rear window; large package compartment on back of front seat; two interior sun visors, fully adjustable; folding rear center arm rest, arm rests on both front doors; assist handles at each end of robe cord; electric clock in center of front seat back.

REVISED 12-15-37



FLEETWOOD 5 PASS. FORMAL TOURING SEDAN
SPECIAL DESIGN FOR
CADILLAC 75 SERIES 141 1/4" W.B.

STYLE Nº 7519-F

CADILLAC FLEETWOOD
5-PASSENGER SEDAN-DIVISION
STYLE NO. 7519-F

Equipment and Appointments

Rear Quarters: Metal with quarter windows.

Front Seat: Entire front seat cushion and back rest adjustable 4". Seat cushion has ¾" rise. Seat frame integral with center body pillars.

Rear Seat: Seat cushion and seat back stationary.

Lighting: Dome light operated by curb-side rear door and left pillar switch. Also corner lights, switch on right pillar.

Windows: Front door windows are equipped with individually controlled ventilator feature. Rear quarter window moves rearwardly 3½". All windows Security Plate Glass.

Interior Panels: Burled and plain walnut combined in pleasing pattern.

Trim: Seven Weise cloths in exclusive patterns; tan or gray; pleated mode.

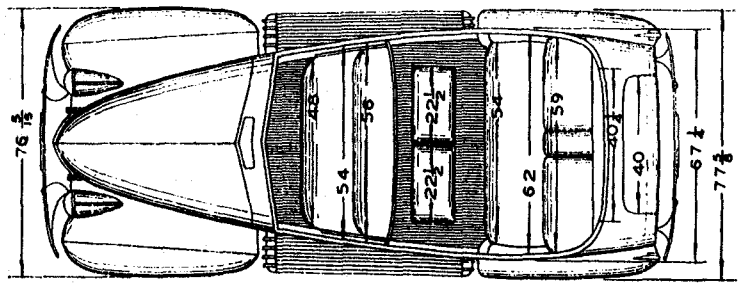
Smoking Equipment: Two ash receivers and two pass-around lighters located at front of rear compartment side arm rests; pass-around lighter in instrument panel recess; ash receiver in right center instrument panel grille.

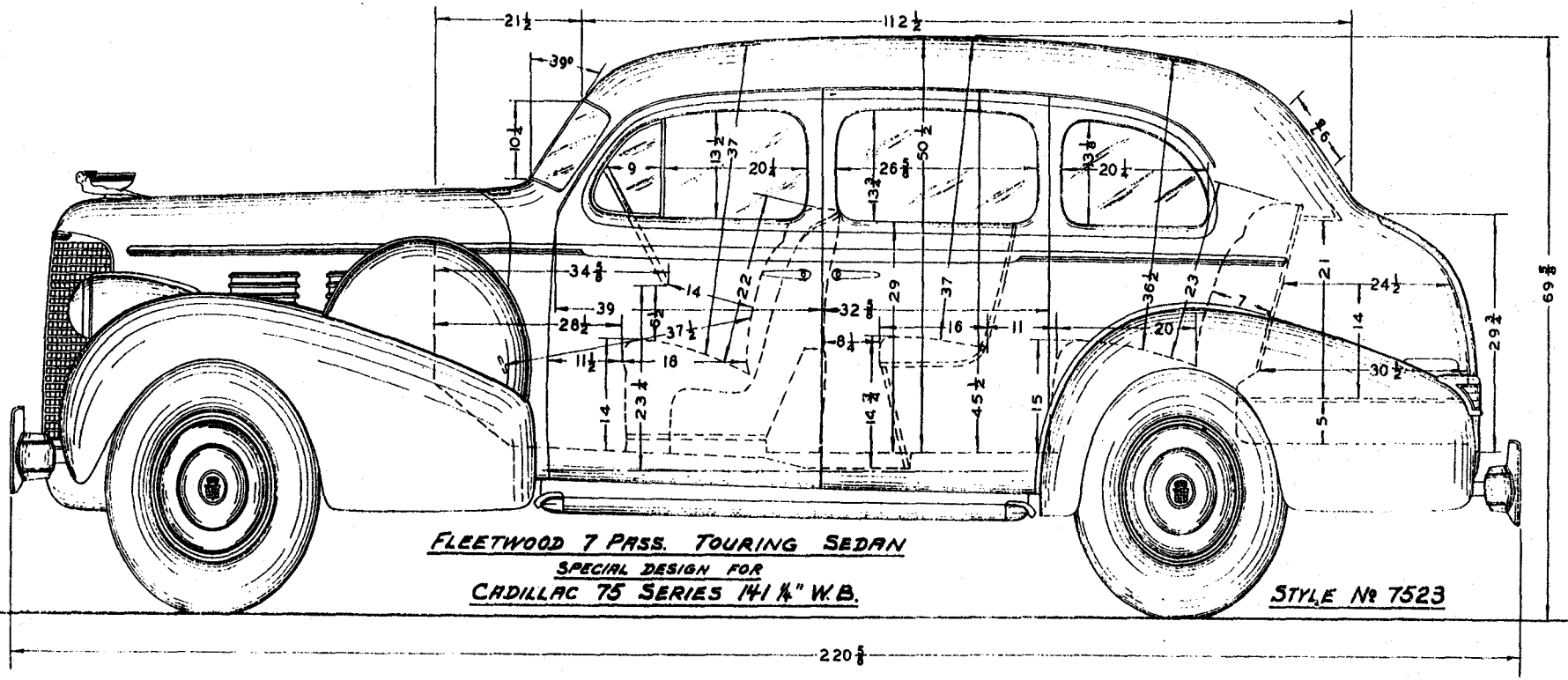
Division: Between front and rear compartments, no header board; modified side pillars; glass may be raised or lowered; operated by control handle on center of division.

Equipment: Two triangular shaped spring type foot hassocks, plush carpet covered to match floor carpet; assist straps on rear pillars; assist handles at both ends of robe cord; folding rear seat center arm rests; arm rests on each front door; slash pockets on inside each rear arm rest.

REVISED 12-15-37

FRONT SEAT MOVES 4" FROM
REAR POSITION SHOWN





FLEETWOOD 7 PASS. TOURING SEDAN
SPECIAL DESIGN FOR
CADILLAC 75 SERIES 141¼" W.B.

STYLE № 7523

CADILLAC FLEETWOOD

7-PASSENGER SEDAN

STYLE NO. 7523

Equipment and Appointments

Rear Quarters: Metal with quarter windows.

Front Seat: Entire front seat cushion and back rest adjustable 4". Seat cushion has ¾" rise. Seat frame integral with center body pillars.

Rear Seat: Seat cushion and seat back stationary.

Lighting: Dome light operated by curb-side rear door and left pillar switch; two rear corner lights operated by right rear pillar switch.

Windows: Front doors are equipped with individually controlled ventilation feature; rear quarter windows move rearwardly 3½". All windows Security Plate Glass.

Interior Panels: Burled walnut and plain walnut combined in pleasing pattern.

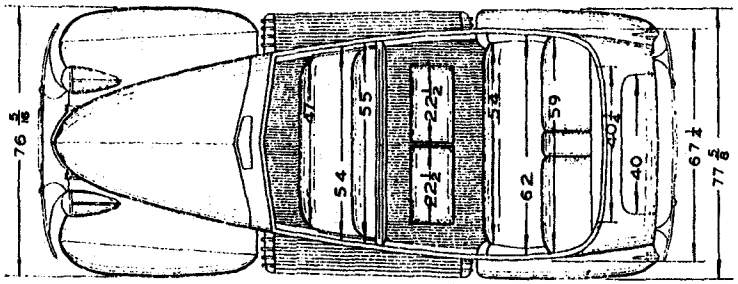
Trim: Seven Weise cloths in exclusive patterns; tan or gray; pleated mode.

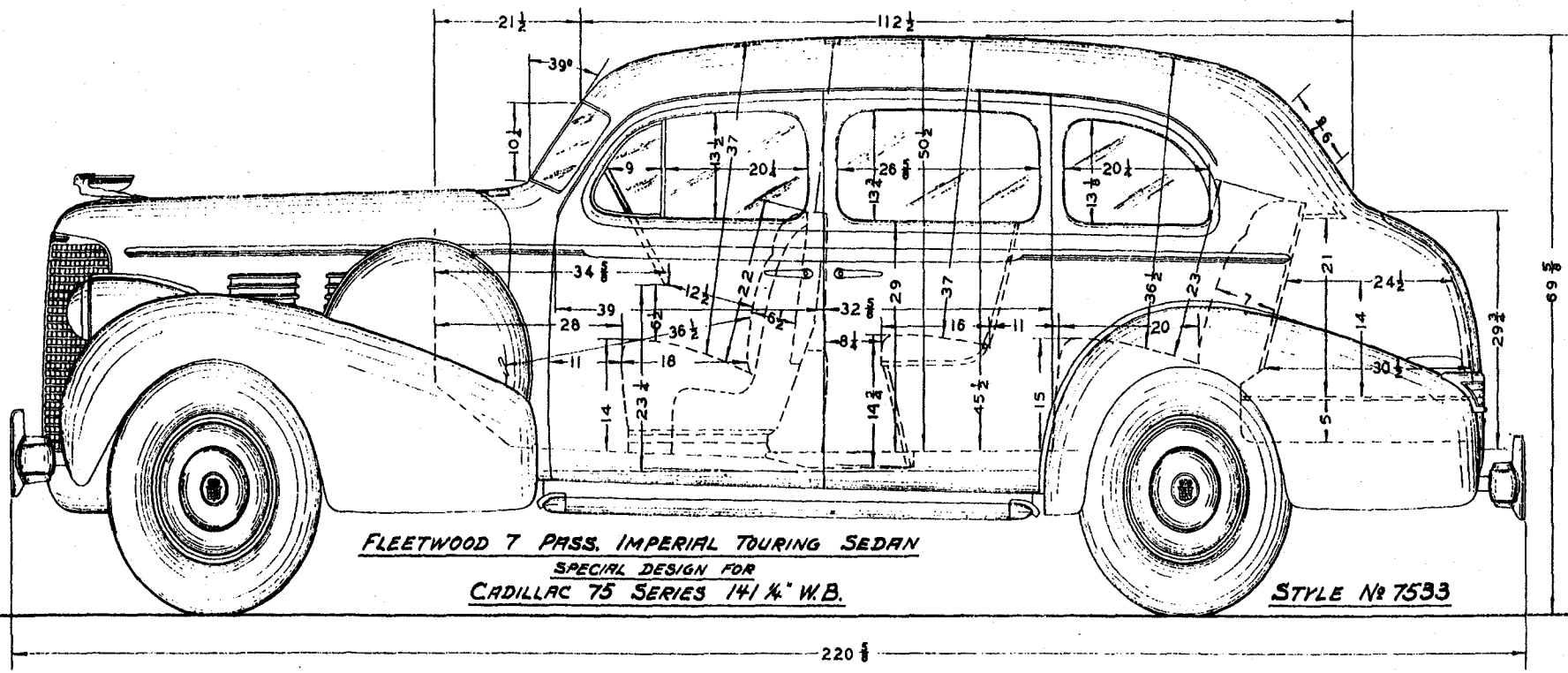
Smoking Equipment: Two ash receivers and two pass-around lighters located at front of rear compartment side arm rests; pass-around lighter in instrument panel recess; ash receiver located in right center instrument panel grille.

Extra Seats: Two facing forward, luxuriously upholstered with Marshall springs; double throw backs, providing room for three passengers, form neat panel in seat back when not in use; no latches or zippers.

Equipment: Foot rest, oval shaped, double adjustable, rubber filled plush carpet covered to match floor carpet; silk rear window curtain; two sliding arm slings; assist handles at both ends of robe cord; assist grips on right and left rear quarter pillars; folding rear seat center arm rest; arm rest in each front door.

REVISED 12-15-37





FLEETWOOD 7 PASS. IMPERIAL TOURING SEDAN

SPECIAL DESIGN FOR

CADILLAC 75 SERIES 141¼" W.B.

STYLE № 7533

CADILLAC FLEETWOOD

7-PASSENGER IMPERIAL

STYLE NO. 7533

Equipment and Appointments

Rear Quarters: Metal with quarter windows.

Front Seat: Stationary, seat back solid divided cushion.

Rear Seat: Seat cushion and seat back stationary.

Lighting: Dome light operated by rear doors and left pillar switch; two rear corner lights operated by right pillar switch; additional dome light in front compartment.

Windows: Front doors are equipped with individually controlled ventilation feature. Rear quarter windows move rearwardly 3½". All windows Security Plate Glass.

Interior Panels: Burled and plain walnut combined in pleasing pattern.

Trim: Front compartment in special down bleak latheer; rear compartment in seven Weise cloths; exclusive patterns; tan or gray; pleated mode.

Smoking Equipment: Two ash receivers and two pass-around lighters located at front of rear compartment side arm rests. Pass-around lighter on instrument board; ash receiver located in right center of instrument panel grille.

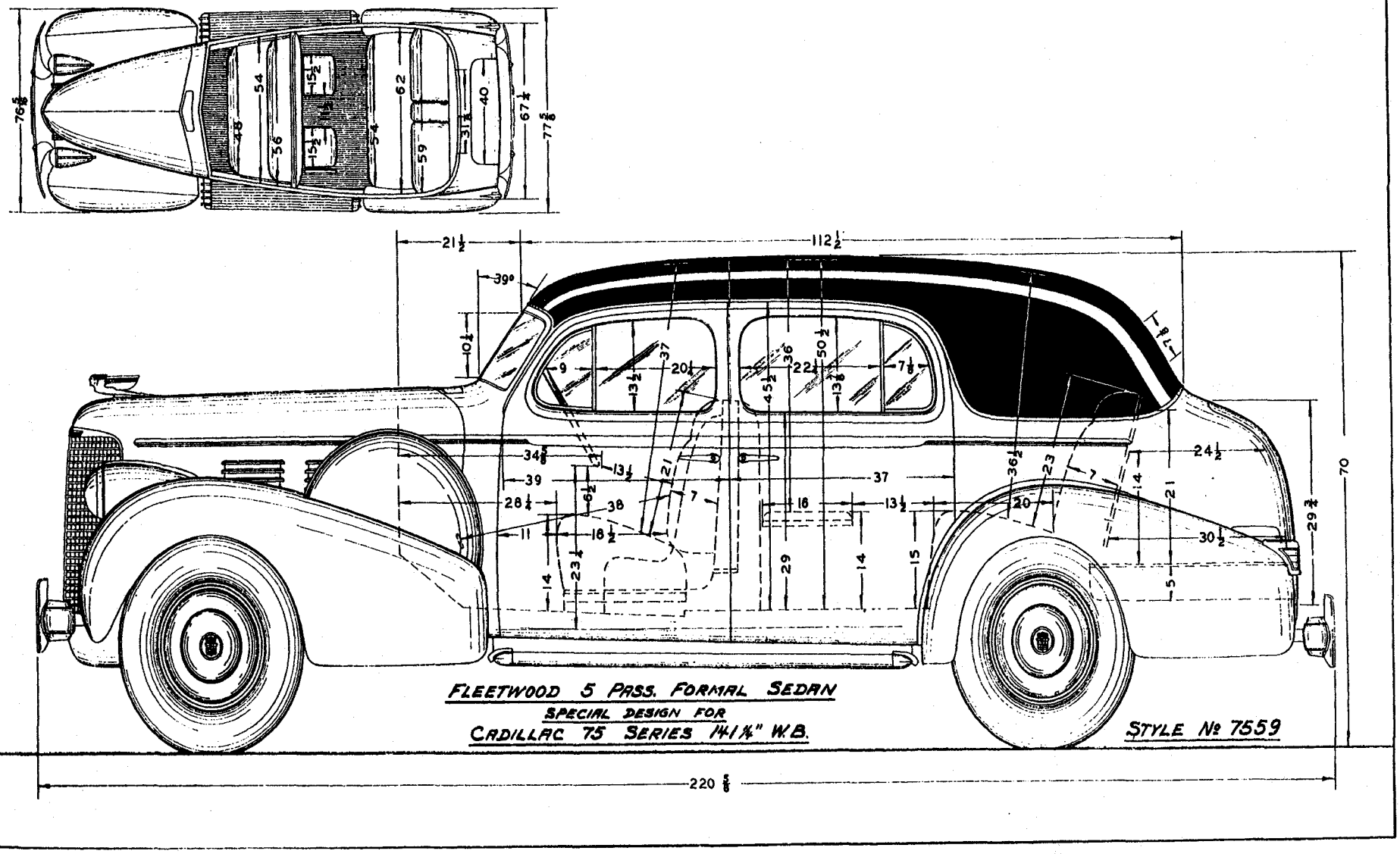
Division: Division with header bar and side pillars; the glass may be raised and lowered between front and rear compartments. Security Plate Glass.

Telephone: New design "Motorphone" consists of detachable microphone, cord and integral push button assembly located in slash pocket on right hand rear quarter above arm rest.

Extra Seats: Two forward facing, luxuriously upholstered with Marshall Springs; double throw-backs; sufficient room for three passengers; concealed in front seat back when not in use, neat panel appearance; no latches or zippers.

Equipment: Foot rest, oval shaped, double adjustment sponge rubber filled, plush carpet covered to match floor carpet; two sliding arm slings; folding center arm rest in rear seat back; arm rest on each front door; assist grips on rear pillars; two assist handles at ends of robe cord; hand mirror carried in slash pocket left hand side; electric clock recessed in division center panel.

REVISED 12-15-37


FLEETWOOD 5 PASS. FORMAL SEDAN
SPECIAL DESIGN FOR
CADILLAC 75 SERIES 141½" W.B.
STYLE № 7559

CADILLAC FLEETWOOD

5-PASSENGER FORMAL SEDAN

STYLE NO. 7559

Equipment and Appointments

Roof and Rear Quarters: Genuine English Landau leather; no quarter windows; not collapsible.

Front Seat: Stationary, upholstered in same material as rear compartment unless otherwise specified.

Rear Seat: Seat cushion and seat back stationary.

Lighting: Dome light operated by curb-side rear door and left rear pillar switch; two rear corner lights operated by right rear pillar switch; additional dome light in front compartment.

Windows: Front and rear doors are equipped with individually controlled ventilation; Security Plate Glass.

Interior Panel: Burled and plain walnut combined in pleasing pattern.

Trim: Seven Weise cloths in exclusive patterns; tan or gray; pleated mode.

Smoking Equipment: Concealed type cases containing ash receivers and pass-around lighters located in the rear quarters above side arm rests; pass-around lighter on instrument board; ash receiver in right center instrument panel grille.

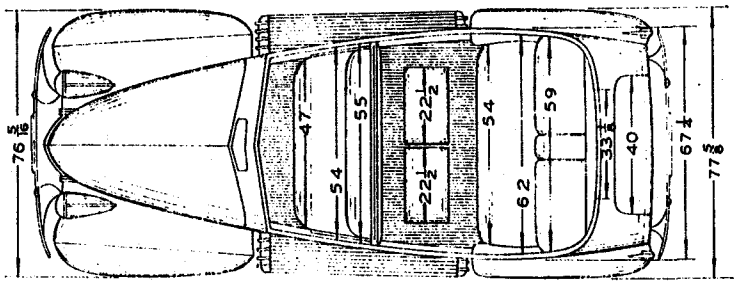
Division: Between front and rear compartments, no header board, modified side pillars, glass may be raised or lowered, operated by control handle on center of division.

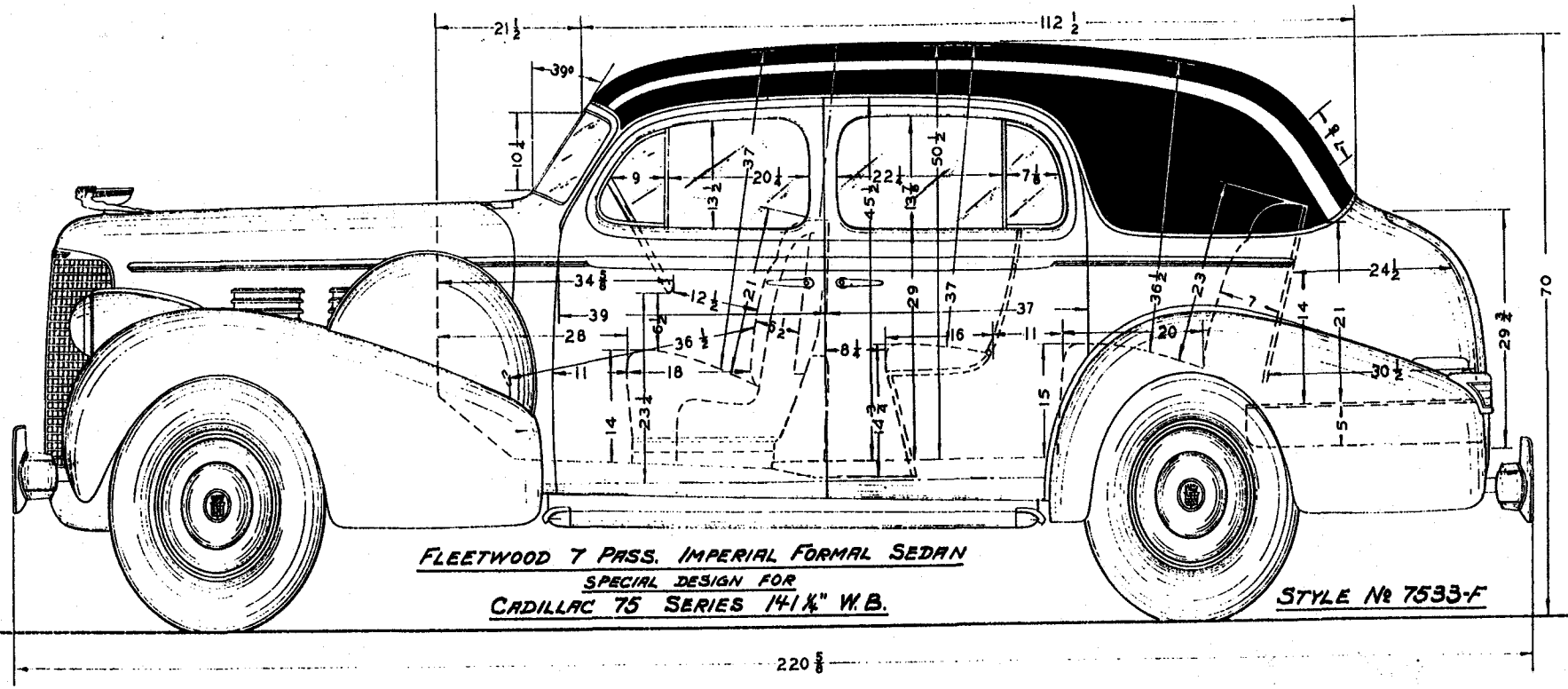
Telephone: New design "Motorphone" consists of detachable microphone, cord and integral push button assembly located in slash pocket on right hand rear quarter above arm rest.

Extra Seats: Two opera type, left seat facing right side with lazy back, right seat facing rear, concealed in division when not in use; neat panel appearance, no latches or zippers.

Equipment: Two triangular shaped spring type foot hassocks, plush carpet covered to match floor carpet; two sliding arm slings; grip handles installed on rear door hinge pillar; two assist handles at ends of robe cord; folding rear seat center arm rest; arm rests on each front door; hand mirror carried in slash pocket, left hand side; electric clock in front seat back.

REVISED 12-15-37





FLEETWOOD 7 PASS. IMPERIAL FORMAL SEDAN
SPECIAL DESIGN FOR
CADILLAC 75 SERIES 141¼" W.B.

STYLE № 7533-F

CADILLAC FLEETWOOD

7-PASSENGER FORMAL SEDAN

STYLE NO. 7533-F

Equipment and Appointments

Roof and Rear Quarters: Genuine English Landau leather, no quarter windows, not collapsible.

Front Seat: Stationary, seat back solid divided cushion.

Rear Seat: Seat cushion and seat back stationary.

Lighting: Dome light operated by rear doors and left pillar switch; two rear corner lights operated by right pillar switch; additional dome light in front compartment.

Windows: Front and rear doors are equipped with individually controlled ventilation. Security Plate Glass.

Interior Panels: Burled and plain walnut combined in pleasing pattern.

Trim: Seven Weise cloths in exclusive patterns; tan or gray; pleated mode.

Smoking Equipment: Concealed type cases containing ash receivers and pass-around lighters located in the rear quarters above side arm rests. Pass-around lighter on instrument board; ash receiver located in right center of instrument panel.

Division: Division with header bar and side pillars; the glass may be raised and lowered between front and rear compartments. Security Plate Glass.

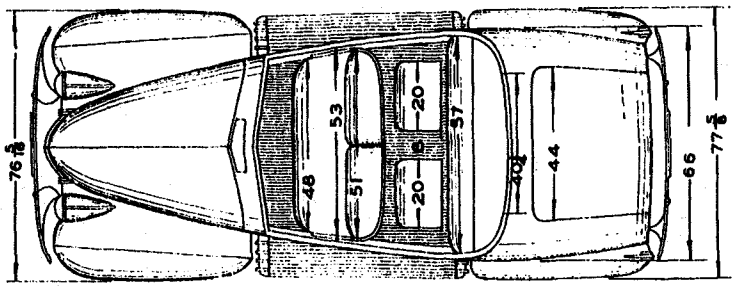
Telephone: New design "Motorphone" consists of detachable microphone, cord and integral push button assembly located in slash pocket on right hand rear quarter above arm rest.

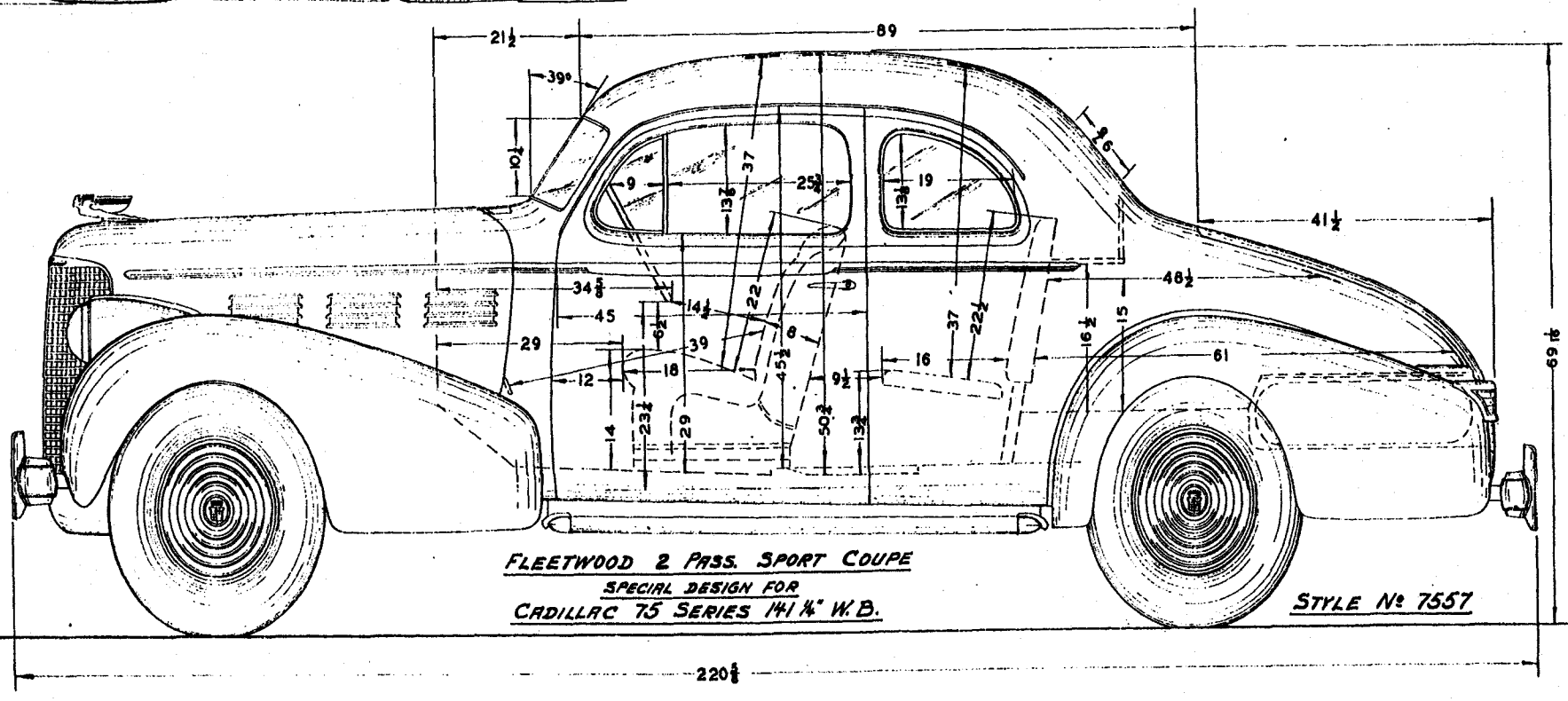
Extra Seats: Two forward facing, luxuriously upholstered with Marshall springs, double throw-backs; sufficient room for three passengers; concealed in front seat back when not in use, neat panel appearance; no latches or zippers.

Equipment: Foot rest, oval shaped, double adjustment sponge rubber filled, plush carpet covered to match floor carpet; two sliding arm slings; assist grips on rear pillars; folding center arm rest in rear seat back; arm rest on each front door; two assist handles at ends of robe cord; hand mirror carried in slash pocket left hand side; electric clock recessed in division center panel.

REVISED 12-15-37

FRONT SEAT MOVES 4" FROM
REAR POSITION SHOWN





FLEETWOOD 2 PASS. SPORT COUPE
SPECIAL DESIGN FOR
CADILLAC 75 SERIES 141 1/4" W.B.

STYLE Nº 7557

CADILLAC FLEETWOOD
2-PASSENGER COUPE
STYLE NO. 7557

Equipment and Appointments

Rear Quarter: Metal with quarter windows.

Opera Seats: Located behind front seat, facing forward; fold when not in use.

Interior Panels: Burled and plain walnut combined in pleasing pattern.

Trim: Seven Weise cloths in exclusive patterns; tan or gray; pleated mode.

Smoking Equipment: Pass-around cigar lighter located in instrument panel recess; ash receiver in right center of panel grille and on both rear side quarters.

Lighting: Dome light controlled by curb-side door and right hand pillar switch.

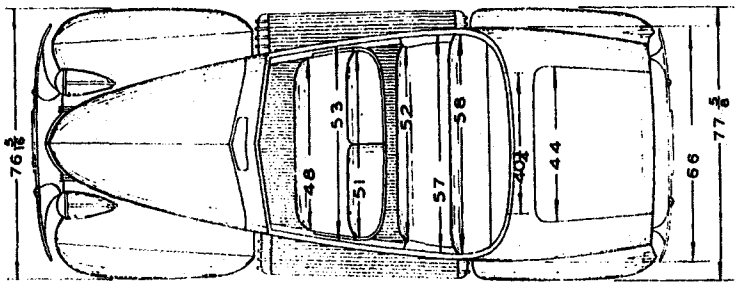
Front Seat: Straight across with seat fully adjustable 4″ with ¾″ rise, back only divided; seat backs swing forward allowing access to opera seats or luggage compartment as desired.

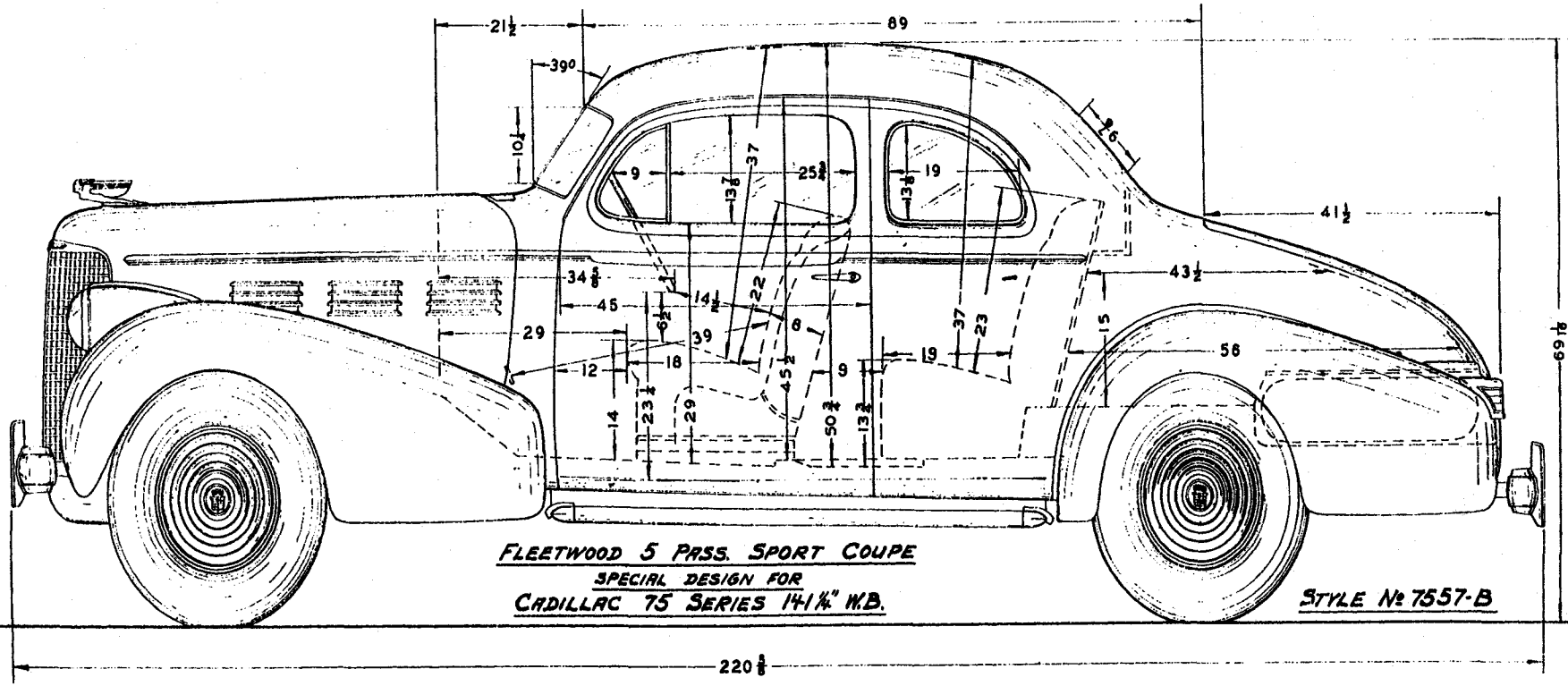
Windows: Doors equipped with individually controlled ventilation feature. Rear quarter windows slide rearwardly. All windows Security Plate Glass.

Equipment: Side arm rests on doors; silk curtain on back window; two interior sun visors, fully adjustable; grip handles on right and left pillars; robe cord on each side of divided front seat back; recessed foot rest; large luggage compartment below rear deck.

REVISED 12-15-37

FRONT SEAT MOVES 4" FROM
REAR POSITION SHOWN





FLEETWOOD 5 PASS. SPORT COUPE
SPECIAL DESIGN FOR
CADILLAC 75 SERIES 141¼" W.B.

STYLE № 7557-B

CADILLAC FLEETWOOD

5-PASSENGER COUPE

STYLE NO. 7557-B

Equipment and Appointments

Rear Quarter: Metal with quarter windows.

Rear Seat: Full across behind front seat, stationary.

Interior Panels: Burled and plain walnut combined in pleasing pattern.

Trim: Seven Weise cloths in exclusive patterns; tan or gray; pleated mode.

Smoking Equipment: Pass-around cigar lighter located in instrument panel recess; ash receiver in right center of panel grille and forward of both rear seat arm rests.

Lighting: Dome light operated by curb-side door and right hand pillar switch.

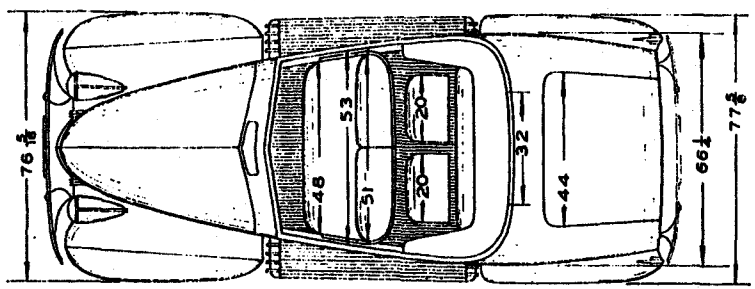
Front Seat: Straight across with seat fully adjustable 4″ with ¾″ rise, back only divided; seat backs swing forward allowing access to rear seat.

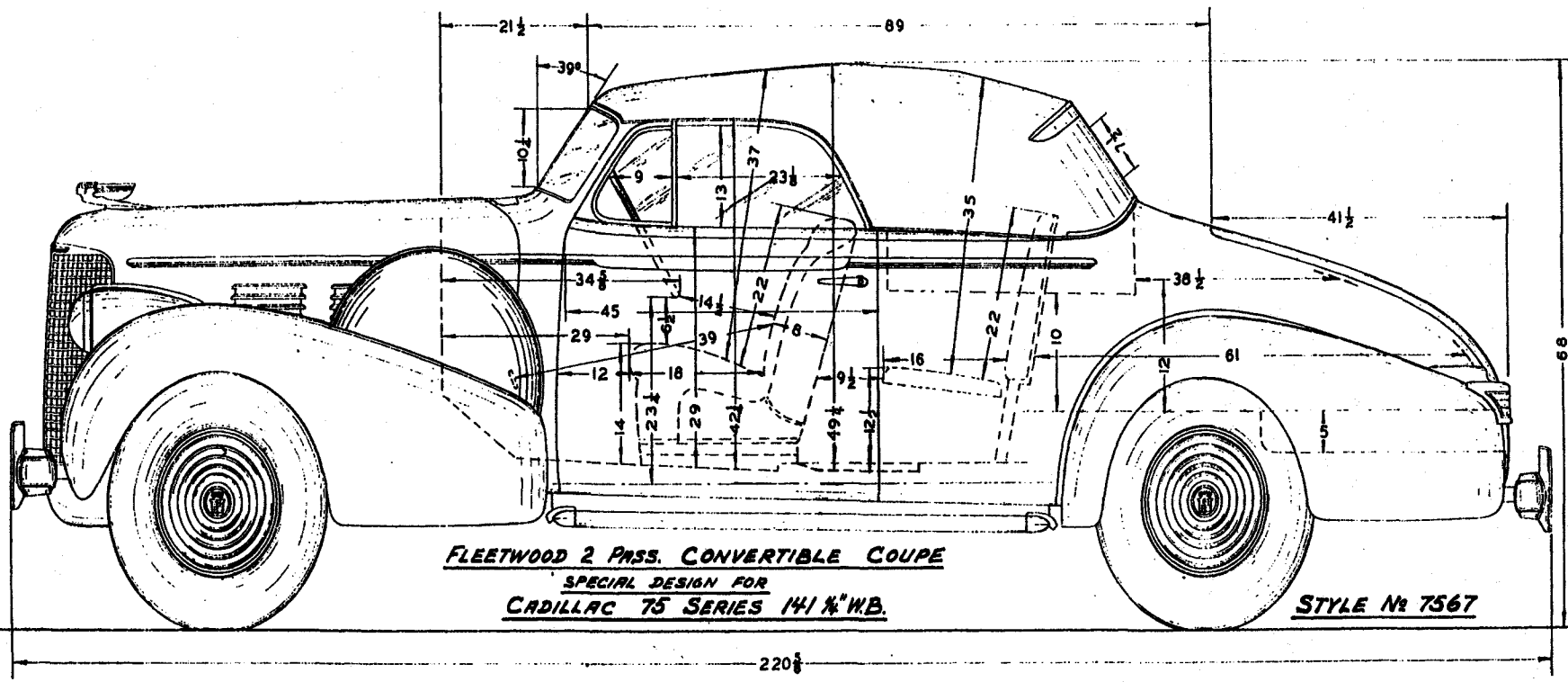
Windows: Doors equipped with individually controlled ventilation feature. Rear quarter windows slide rearwardly. All windows Security Plate Glass.

Equipment: Side arm rests on doors; silk curtain on back window; two interior sun visors, fully adjustable; grip handles on right and left pillars; slash pockets in side of each rear arm rest; robe cords on each side of divided front seat back; recessed foot rests; large luggage compartment below rear deck.

REVISED 12-15-37

FRONT SEAT MOVES 4" FROM
REAR POSITION SHOWN





FLEETWOOD 2 PASS. CONVERTIBLE COUPE
SPECIAL DESIGN FOR
CADILLAC 75 SERIES 141 ¾" W.B.

STYLE № 7567

CADILLAC FLEETWOOD
CONVERTIBLE COUPE
STYLE NO. 7567

Equipment and Appointments

Top and Rear Quarters: Burbank fully collapsible, folding into special compartment fully concealed.

Front Seat: Straight across with seat fully adjustable 4″ with ¾″ rise on seat cushion, back only divided, seat backs swing forward allowing access to opera seats.

Opera Seats: Two, directly behind front seat, facing forward, fold up when not in use.

Smoking Equipment: Pass around cigar lighter located in instrument panel recess, ash receiver in right center of panel grille and on both rear side quarters.

Interior Panels: Burled and plain walnut combined in pleasing pattern.

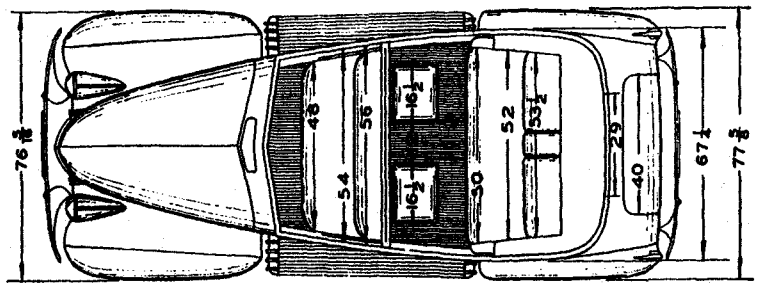
Trim: Options of black, tan, gray or green genuine cowhide; tan or gray Bedford Cords.

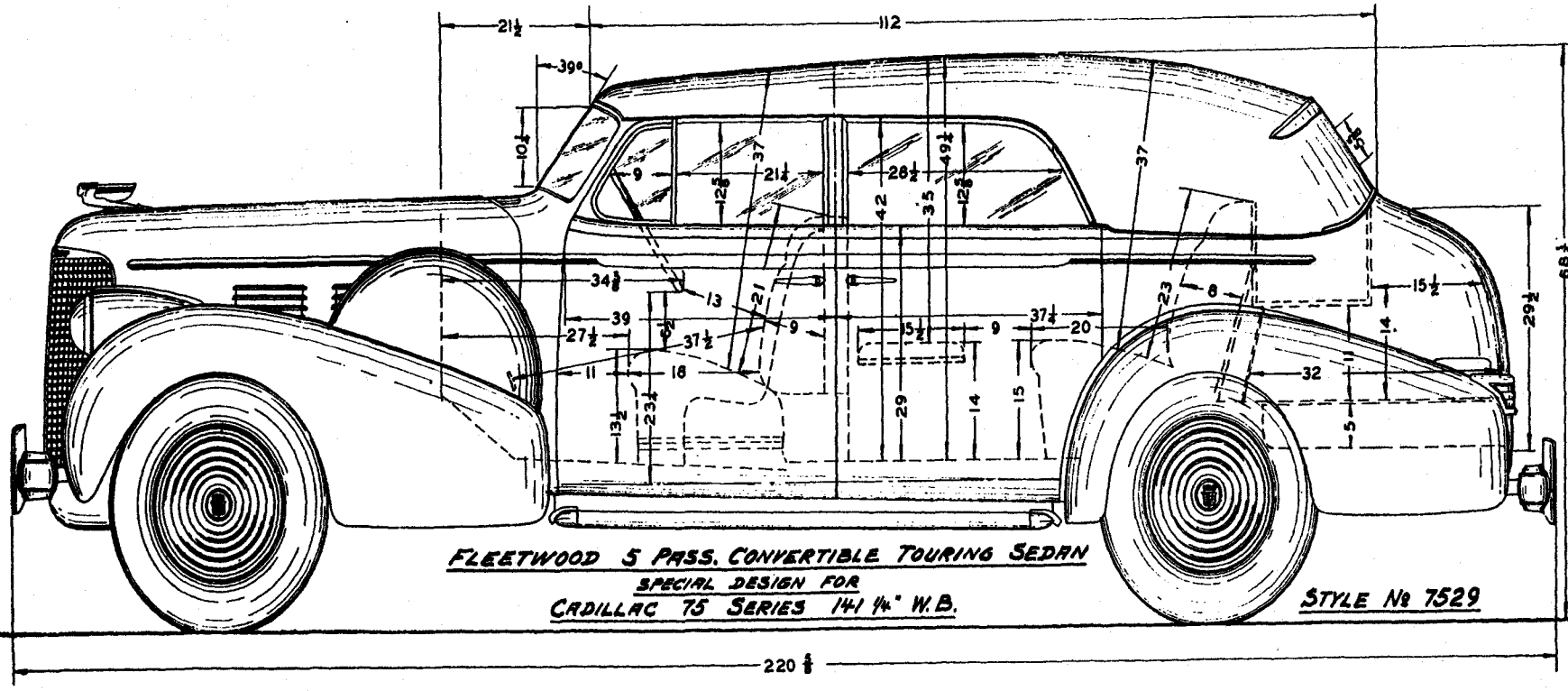
Windows: Doors are equipped with individually controlled ventilation feature. All windows Security Plate Glass.

Equipment: Side arm rests on doors; two interior sun visors, adjustable; robe cord on each side of divided front seat back; recessed foot rest; dust boot for top when folded; large luggage compartment under rear deck.

REVISED 12-15-37

OPERA SEATS OPTIONAL EQUIPMENT
EXTRA CHARGE





FLEETWOOD 5 PASS. CONVERTIBLE TOURING SEDAN
SPECIAL DESIGN FOR
CADILLAC 75 SERIES 141 1/4" W.B.

STYLE Nº 7529

CADILLAC FLEETWOOD CONVERTIBLE SEDAN

STYLE NO. 7529

Equipment and Appointments

Top and Rear Quarters: Burbank fully collapsible, folding into special compartment, fully concealed.

Front Seat: Stationary.

Rear Seat: Seat cushion and seat back stationary.

Interior Panels: Burled walnut and plain walnut combined in pleasing pattern.

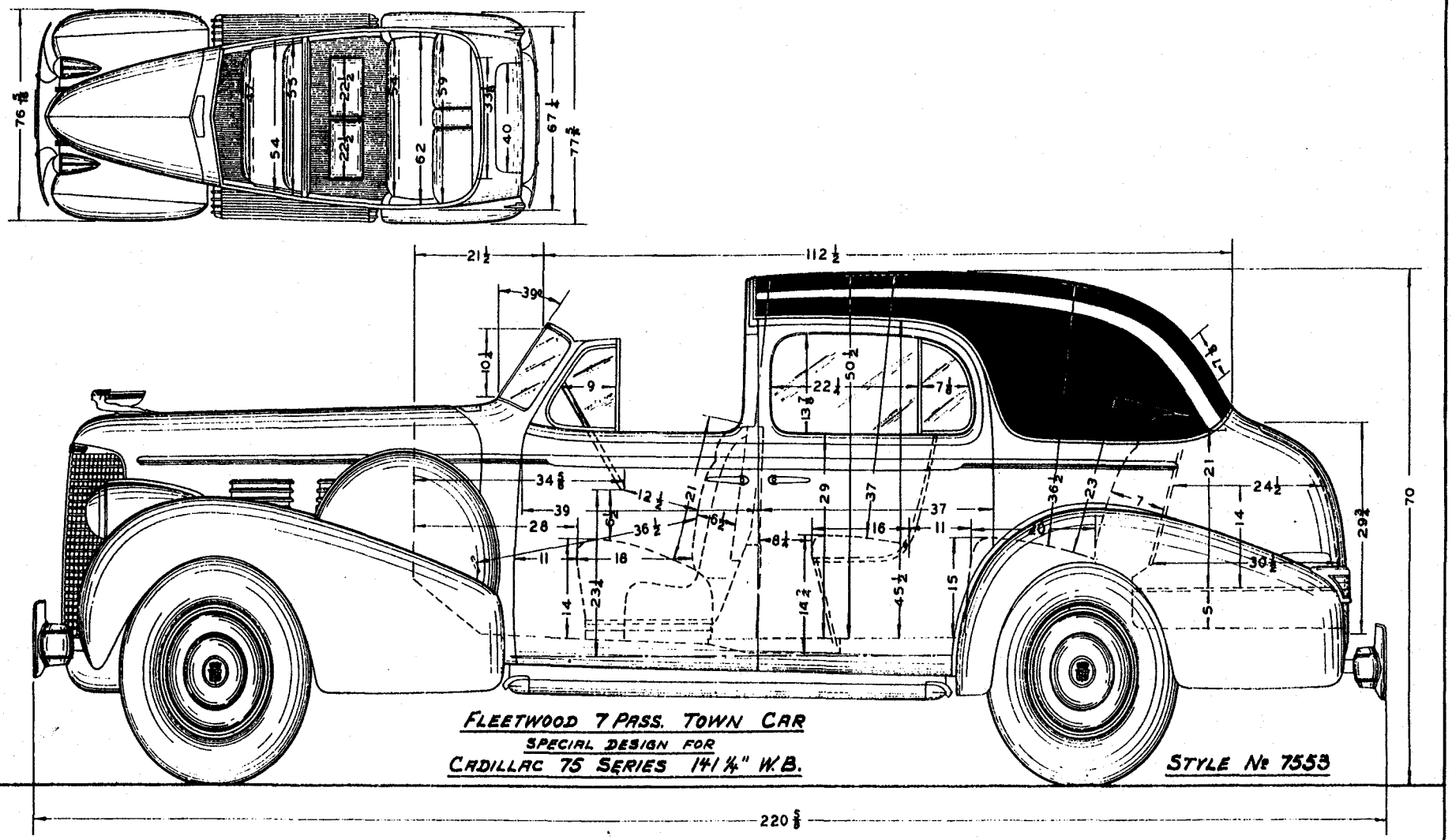
Trim: Tan, gray, green or black genuine cowhide leathers; tan or gray Bedford Cord.

Lighting: Courtesy lights recessed in front of rear compartment side arm rests, operated by switch on curb-side rear door, and switch on right rear arm rest.

Windows: Front doors are equipped with individually controlled ventilation feature. All windows Security Plate Glass.

Smoking Equipment: Two pass-around lighters recessed in front of ash receivers, located in front of rear side arm rests. Pass-around lighter in instrument panel recess; ash receiver in right center panel grille.

Equipment: Two triangular shaped spring type foot hassocks, plush carpet covered to match floor carpet; two interior sun visors, adjustable; folding center arm rest in rear seat back; arm rest on each front door; robe cord; dust boot for top when folded.



FLEETWOOD 7 PASS. TOWN CAR
SPECIAL DESIGN FOR
CADILLAC 75 SERIES 141 1/4" W.B.

STYLE № 7553

CADILLAC FLEETWOOD
TOWN CAR
STYLE NO. 7553

Equipment and Appointments

Roof and Rear Quarter: Genuine English Landau leather, no quarter windows, not collapsible. Front compartment has collapsible roof.

Front Seat: Stationary, seat back solid.

Rear Seat: Seat cushion and back stationary.

Lighting: Dome light operated by rear doors and left pillar switch; two rear corner lights, right rear pillar switch.

Windows: All Security Plate Glass. Equipped with I. C. V.

Interior Panels: Burled and plain walnut combined in pleasing combination.

Trim: Front compartment in special down black cowhide; rear compartment in seven exclusive Weise cloth patterns; tan or gray; pleated mode.

Smoking Equipment: Concealed type cases containing ash receivers and pass-around lighters located above side arm rests; pass-around lighter in instrument panel recess; ash receiver located in right center of instrument panel grille.

Division: With header board and side pillars; glass may be raised and lowered between front and rear compartments. Security Plate Glass.

Telephone: New design "Motorphone," detachable microphone, cord and integral push button assembly located in slash pocket on right hand rear quarter above arm rest.

Extra Seats: Two facing forward, luxuriously upholstered with Marshall springs; double throw backs, providing room for three passengers; concealed when not in use, neat panel appearance, no latches or zippers.

Equipment: Two triangular shaped spring type foot hassocks, plush carpet covered to match floor carpet; two sliding arm slings; grip handles located on right and left hand hinge pillars; assist handles on both ends of robe cord; folding center arm rest in rear seat back; arm rest on each front door; hand mirror carried in slash pocket, left hand side; electric clock recessed in division center panel.

REVISED 12-15-37

CADILLAC SIXTEEN

Establishes a New High Standard of the World

The creation and introduction of the first sixteen cylinder passenger car by Cadillac in 1930 reaffirmed Cadillac's reputation, previously established many years before, of being the Standard of the World in motor car design.

Cadillac's standards of excellence, both in engineering and manufacture, prerequisite to building the world's finest and most luxurious motor car, are necessarily the highest and most envied in the industry. That these same standards of excellence are rigidly adhered to in building Cadillac Fleetwood, Cadillac V-8, Cadillac Sixty and LaSalle is ample justification of the greater value in-built in every motor car at Cadillac.

Cadillac, however, has never rested upon her world-renowned laurels. "Progress Means Change." Although the first V-16 established standards never approximated by any other fine car builder, Cadillac engineers continued to strive toward lifting those standards even higher.

For 1938 Cadillac revolutionizes her own World's Standards by the introduction of a motor car embracing:

The First 135 Degree Sixteen Cylinder V-type Engine.

A Completely Redesigned Chassis Providing Greater Durability and Comfort.

Coachcraft Which Surpasses Every Fleetwood Tradition.

The 1938 Cadillac Sixteen establishes a new high Standard of the World in Performance, Smoothness, Comfort and Luxury.

For the first time the revered prestige of Sixteen Cylinder Cadillac ownership is available to a far greater number of people than ever before. The new Sixteen displaces and antiquates all twelve cylinder automobiles.

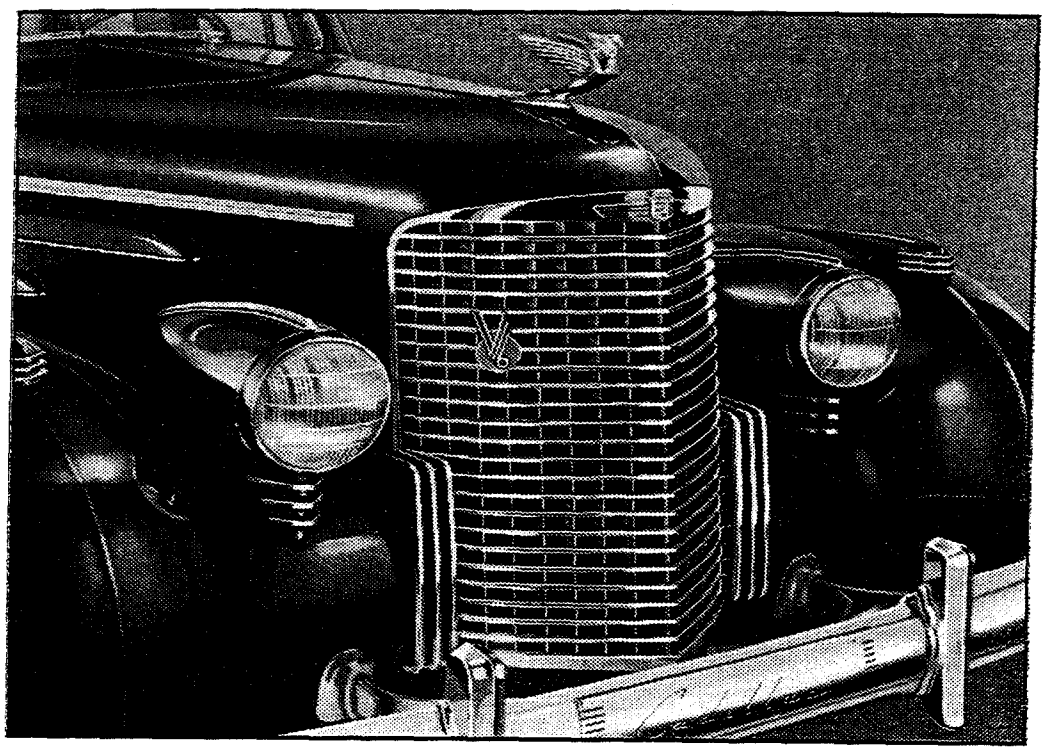
Cadillac Sixteen for 1938 is the first to bring to those desiring the finest in motor car transportation every practical feature of maneuverability heretofore believed obtainable only on small models. Sixteen performance is far superior to any fine car ever built. Improved Center Point Steering, redesigned double stabilizers, more rigid frame and Syncromatic Shift all provide the new Sixteen with extreme handling ease and steadiness whether in conjested traffic, in parking, or at high speeds on the open road. The driver has no consciousness of size or weight. Motoring pleasure has been raised to a new high level of comfort and relaxation.

To make all these exclusive sales advantages possible, Fleetwood has designed twelve optional custom coachwork types available on the Sixteen chassis, thereby assuring more immediate delivery than has heretofore been possible. These Fleetwood models are illustrated with their dimensional drawings on the following pages. It is a noteworthy Fleetwood achievement that these selections embrace every custom type usually selected by motor car buyers in fourteen exterior color combinations with harmonizing interiors to match.

In addition, for those who desire individual creations to satisfy their personal fancy, Fleetwood continues to provide a corps of designers for the purpose. These craftsmen are masters in the art of most distinctive motor car design and will comply with every reasonable whim of any purchaser.

SIXTEEN EXTERIOR STYLING

The new Cadillac Sixteen combines every practical feature, such as ease of entrance and interior roominess, comfort and extensive visibility in an amount never heretofore achieved with modern most dignified styling.



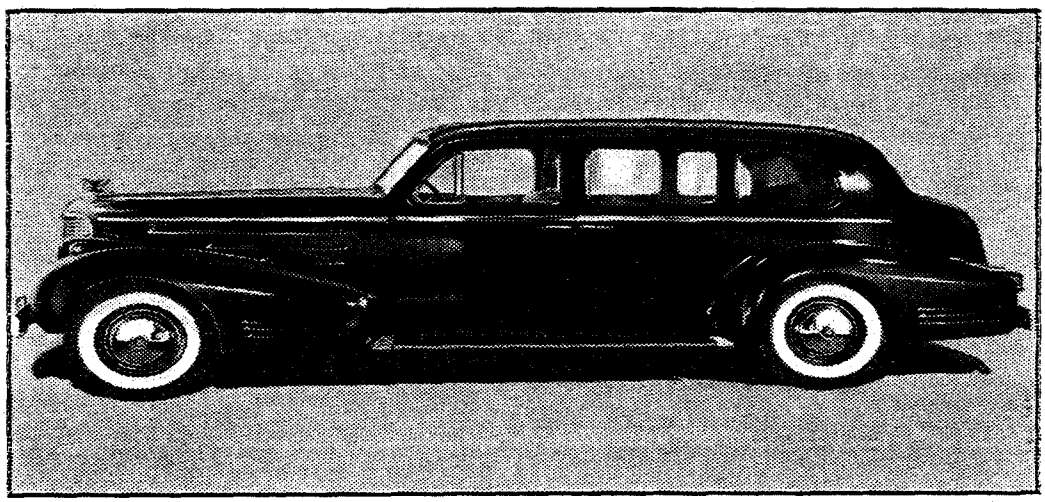
Front View

The exceedingly wide die-cast radiator grille differs in design from all other Cadillacs and is heavily chromed. It consists of large rectangular cells and heavy horizontal bars which curve inwardly in their upper portion into the plane of the hood louvers, and outwardly in their lower portion into the front of the massive sweeping fenders. The original V-16 monogram on a red enamel background is applied to the right side of the grille. A new, smaller Cadillac crest surmounts the grille below and in front of the radiator ornament.

New headlamps are long and streamlined and appear submerged into the fenders. Beneath them are large, vertical die-cast projections. Fender lamps of a pleasing

modern design blend into the uppermost curve of the fenders.

Groups of three steamlined louvers provide unique Sixteen distinction on the hood side panels and on both front and rear fender skirts. Running boards are sepa-



Side View

rated from the fenders and are completely rubber covered except for chrome protectors in which the die-castings are formed into longitudinal vanes.

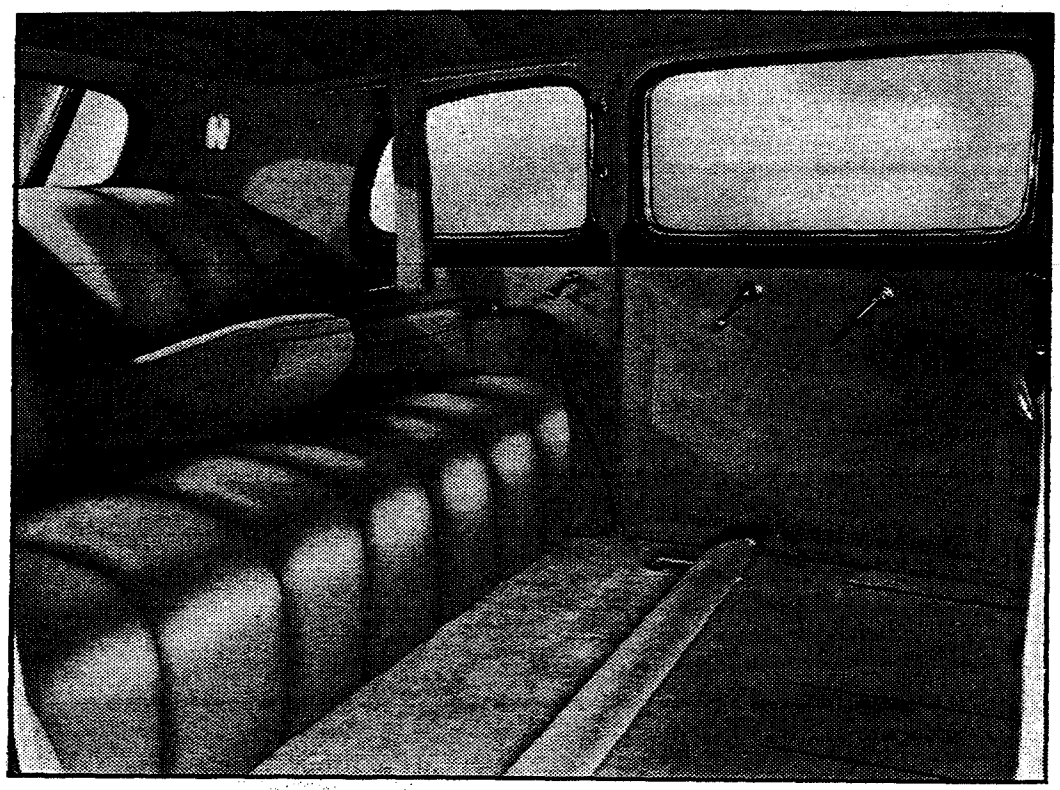
Large chrome wheel discs are decorated with a "V-16" monogram with a round red and black cloisonne background.

Impressive dignity is reflected by the manner in which the trunk is built to blend harmoniously with the rear quarter body lines and the smooth Turret Top. The trunk is even larger and more spacious than before. Distinctively designed tail lamps appear as an integral part of the sweeping rear fenders themselves.

CADILLAC SIXTEEN INTERIORS

Fleetwood Surpasses All Traditions in Luxurious Comfort

The new coachwork created by Fleetwood provides greater interior measurements in all dimensions than has ever before been achieved. This is a remarkable accomplishment in view of a thirteen inch reduction in wheelbase from the previous model. This enlargement in roominess is made possible by the 135° V-type engine design, the most compact engine for its size ever built.



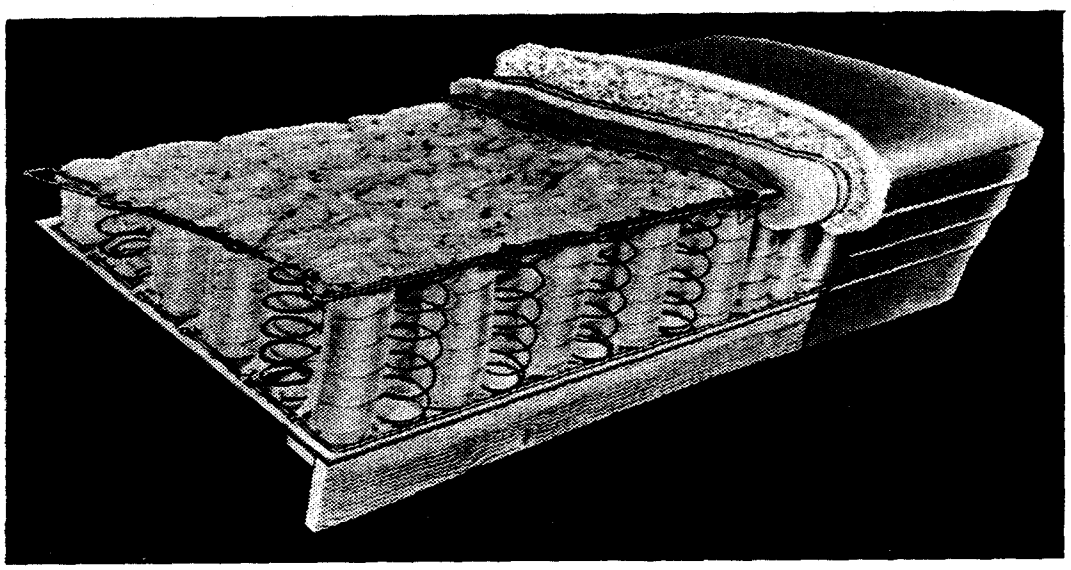
Luxuriously Appointed Rear Compartment

Doors are higher and wider, facilitating access into the front and rear compartments of the car. In addition to increased door sizes, the new Fleetwood design of auxiliary seat construction in seven passenger models reduces the thickness of the front seat back, greatly increasing foot room for the auxiliary seat passengers and permitting them to step directly into the seats without cramping or twisting.

Additional features of the new auxiliary seat design are its neat paneled appearance which avoids annoying and unsightly zipper flaps or latched covers; and unusual comfort from increased leg room, higher seat backs and wider seat cushions which meet at the center.

Within the car there is greater headroom, legroom and seat room. There is complete freedom of movement for three large persons on the rear seat while unobstructed front compartment floors, made possible by placing the shifting lever on the steering column, afford a wealth of room for three persons on the front seat.

Outward vision for both passengers and driver within the Sixteen is far greater than ever before, thereby providing greater comfort and safety.

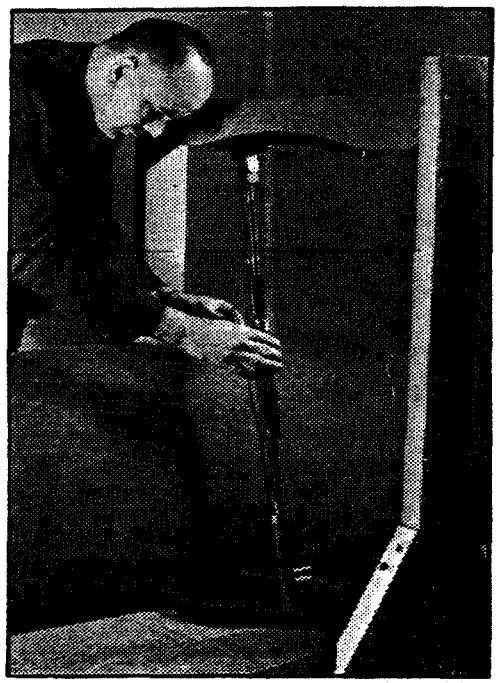


Fleetwood Seat Cushion Construction

Even more luxurious are the interior appointments of the new Sixteen. The very finest of upholstery fabrics woven to precise Fleetwood specifications are available in ten different patterns. Assist grips, decorated with tenite, are placed on each rear quarter pillar of most models. There are assist handles on the front seat back at both ends of the robe cord on Sedans.

Garnish mouldings and paneling are done in a pleasing design of natural burl walnut.

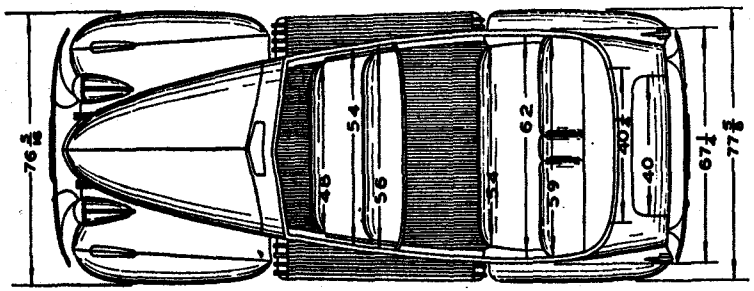
The rear compartment floor is snugly fitted with a heavy pile plush carpet which not only lends richness to interior appearance, but serves as a most efficient insulator against sound and climatic conditions. These carpets are of special Fleetwood design. They have a rubber vulcanized base and tapering edges without binding for close fitting. The vulcanizing process prevents fraying at the edges.

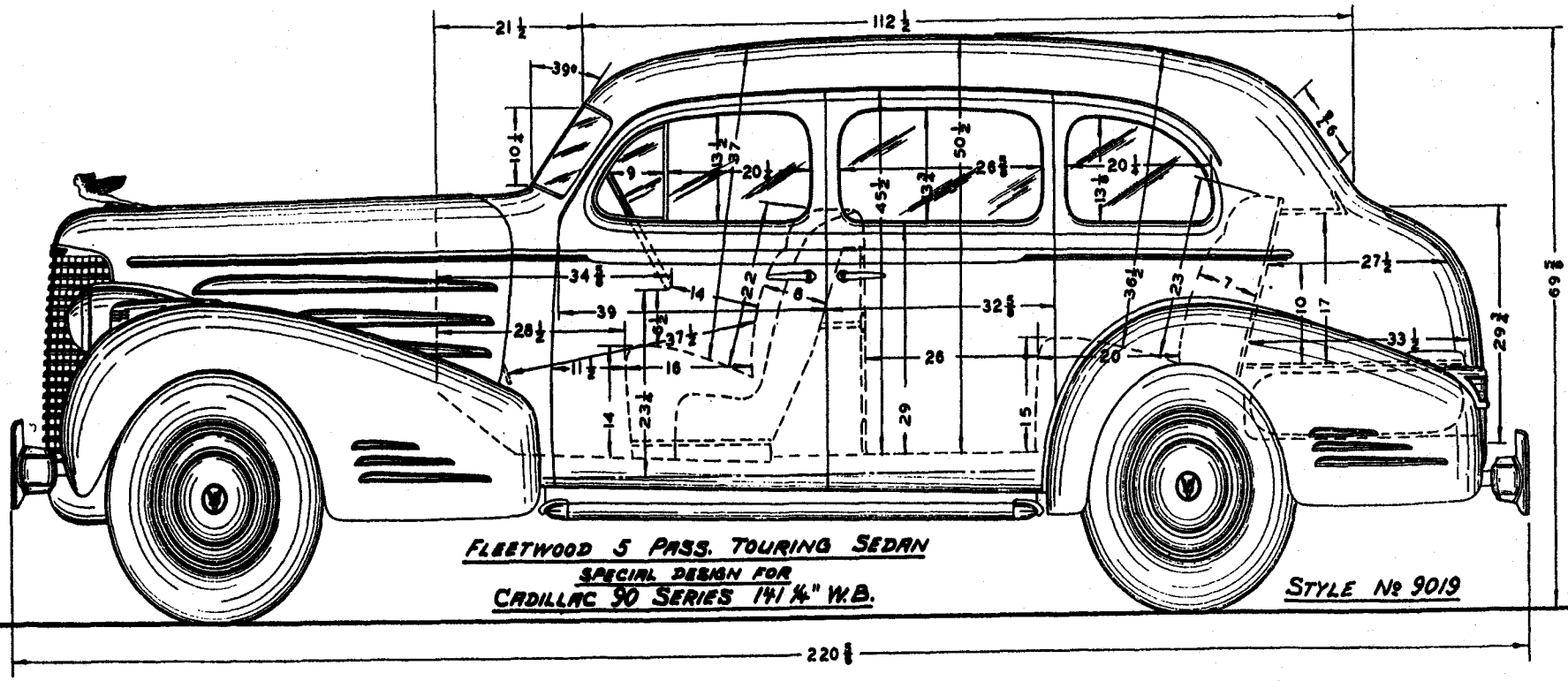


Testing Seats to Insure Comfort Under Varying Loads

All of the new higher windows are of Security Plate Glass. No-draft ventilation throughout the interior of the car is provided by individually controlled ventilators. Front windows have ventipanes while the rear quarter windows move rearwardly, providing an air inlet of three and one-quarter inches if desired.

FRONT SEAT MOVES 4" FROM
REAR POSITION SHOWN





FLEETWOOD 5 PASS. TOURING SEDAN
SPECIAL DESIGN FOR
CADILLAC 90 SERIES 141 1/4" W.B.

STYLE Nº 9019

CADILLAC SIXTEEN
5-PASSENGER SEDAN
STYLE NO. 9019

Equipment and Appointments

Rear Quarters: Metal with quarter windows.

Front Seat: Entire front seat cushion and back rest adjustable 4". Seat cushion has ¾" rise. Seat frame integra with center body pillars.

Rear Seat: Seat cushion and seat back stationary.

Lighting: Dome light operated by rear doors and left rear pillar switch. Also corner lights, switch on right rear pillar.

Windows: Front door windows are equipped with individually controlled ventilator feature. Rear quarter windows move rearwardly 3½". All windows Security Plate Glass.

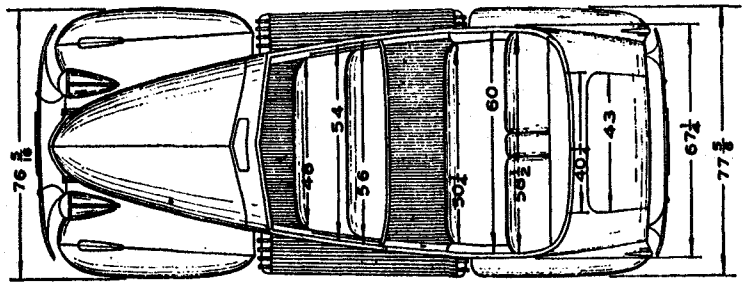
Interior Panels. Natural burled walnut.

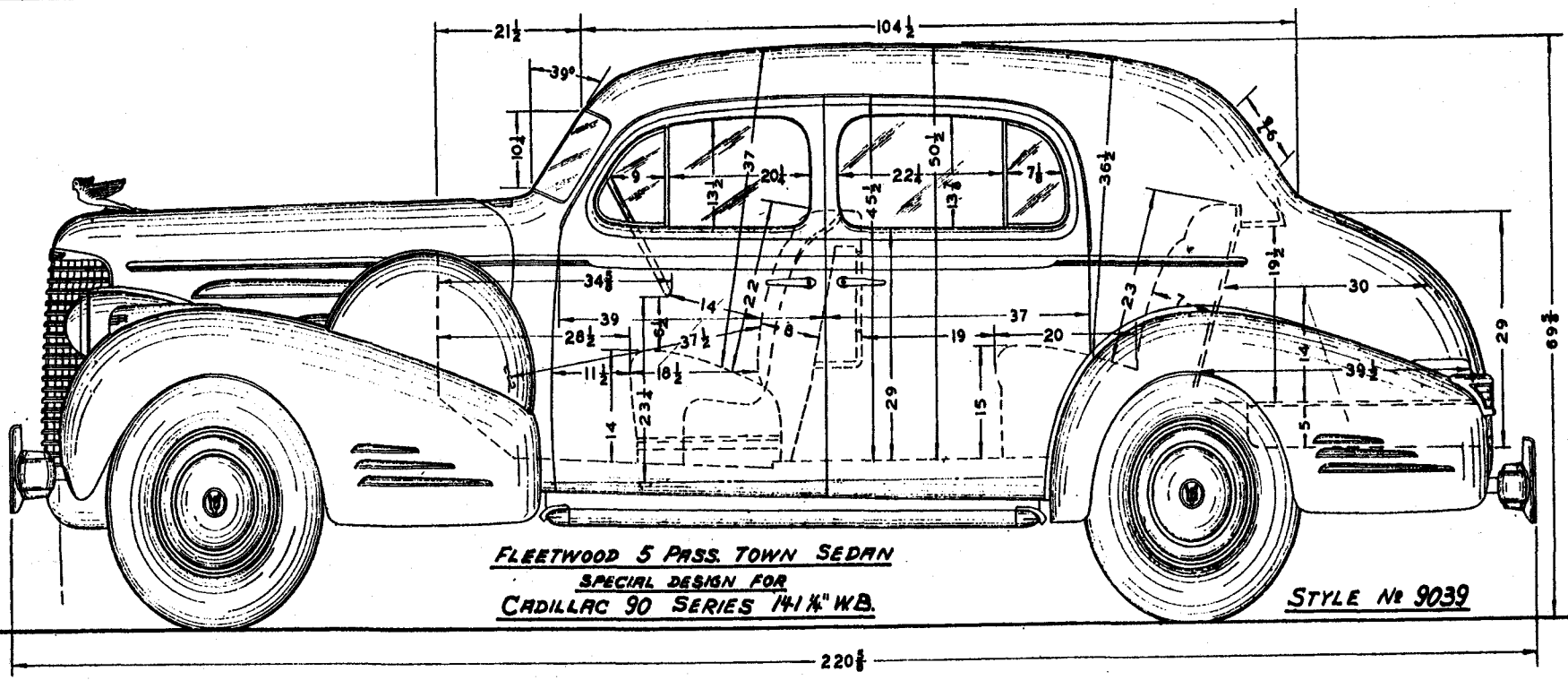
Trim: Ten Weise cloths; tan, gray or brown; exclusive patterns; tufted mode.

Smoking Equipment: Two ash receivers and two pass-around lighters located at front of rear compartment side arm rests; pass-around lighter in instrument panel recess; ash receiver in right center instrument panel grille.

Equipment: Two triangular shaped spring type foot hassocks, plush carpet covered to match floor carpet; silk curtain for rear window; two assist straps located on right and left hand rear pillars; two interior sun visors, fully adjustable; folding center arm rest in rear seat back, side arm rests in rear compartment and on front doors; slash pockets in each rear arm rest. Assist handles at each end of robe cord.

FRONT SEAT MOVES 4" FROM
REAR POSITION SHOWN





FLEETWOOD 5 PASS. TOWN SEDAN
SPECIAL DESIGN FOR
CADILLAC 90 SERIES 141½" W.B.

STYLE № 9039

CADILLAC SIXTEEN

5-PASSENGER TOWN SEDAN

STYLE NO. 9039

Equipment and Appointments

Rear Quarters: Full metal back.

Front Seat: Entire front seat cushion and back rest adjustable 4". Seat cushion has ¾" rise Seat frame integral with center body pillars

Rear Seat: Seat cushion and seat back stationary.

Lighting: Dome light operated by rear doors and left rear pillar switch; two rear corner lights operated by right rear pillar switch.

Windows: Front and rear doors are equipped with individually controlled ventilation feature. All windows Security Plate Glass.

Interior Panels: Natural burled walnut.

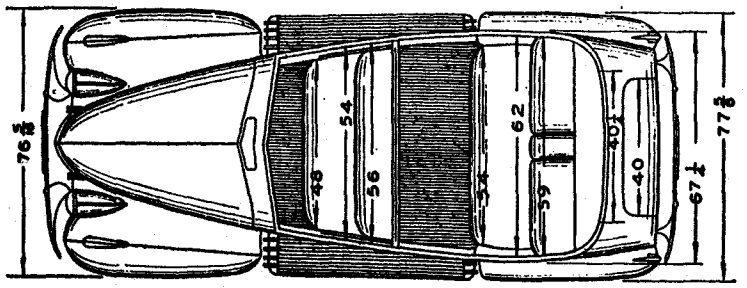
Trim: Ten Weise cloths; tan, gray or brown; exclusive patterns; tufted mode.

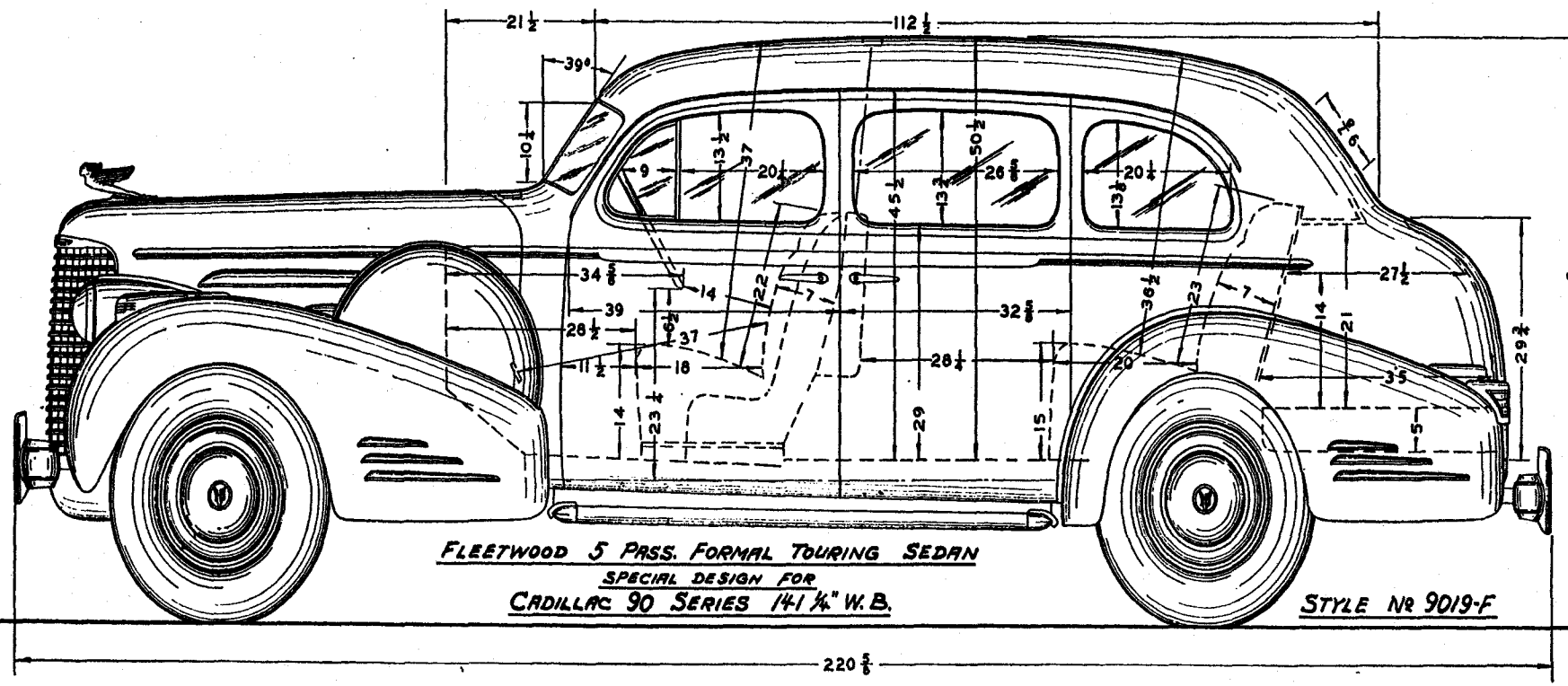
Smoking Equipment: Ash receivers recessed in rear arm rests; ash receiver front compartment, in right center instrument panel grille; two pass-around lighters in front of rear ash receivers, also recessed in instrument panel.

Equipment: Two triangular shaped spring type foot hassocks, plush carpet covered to match floor carpet, silk curtain for rear windows; large compartment on back of front seat; two interior sun visors, fully adjustable; folding rear center arm rest, arm rests on both front doors; two sliding arm slings; assist handles at each end of robe cord; electric clock in center of front seat back.

REVISED 12-15-37

FRONT SEAT MOVES 4" FROM
REAR POSITION SHOWN





FLEETWOOD 5 PASS. FORMAL TOURING SEDAN
SPECIAL DESIGN FOR
CADILLAC 90 SERIES 141 ¼" W. B.

STYLE Nº 9019-F

CADILLAC SIXTEEN

5-PASSENGER SEDAN-DIVISION

STYLE NO. 9019-F

Equipment and Appointments

Rear Quarters: Metal with quarter windows.

Front Seat: Entire front seat cushion and back rest adjustable 4". Seat cushion has ¾" rise. Seat frame integral with center body pillars.

Rear Seat: Seat cushion and seat back stationary.

Lighting: Dome light operated by rear doors and left rear pillar switch. Also corner lights, switch on right pillar.

Windows: Front door windows are equipped with individually controlled ventilator feature. Rear quarter window moves rearwardly 3½". All windows Security Plate Glass.

Interior Panels: Natural burled walnut.

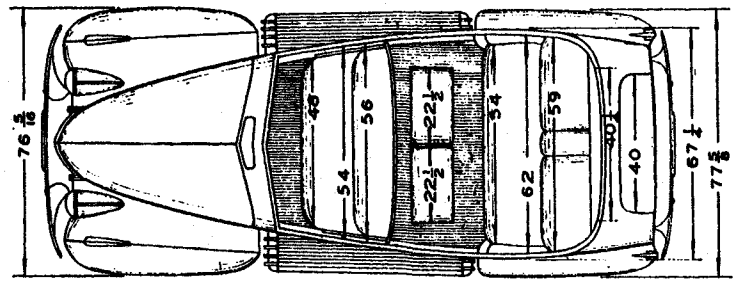
Trim: Ten Weise cloths in exclusive patterns; tan, gray or brown; tufted mode.

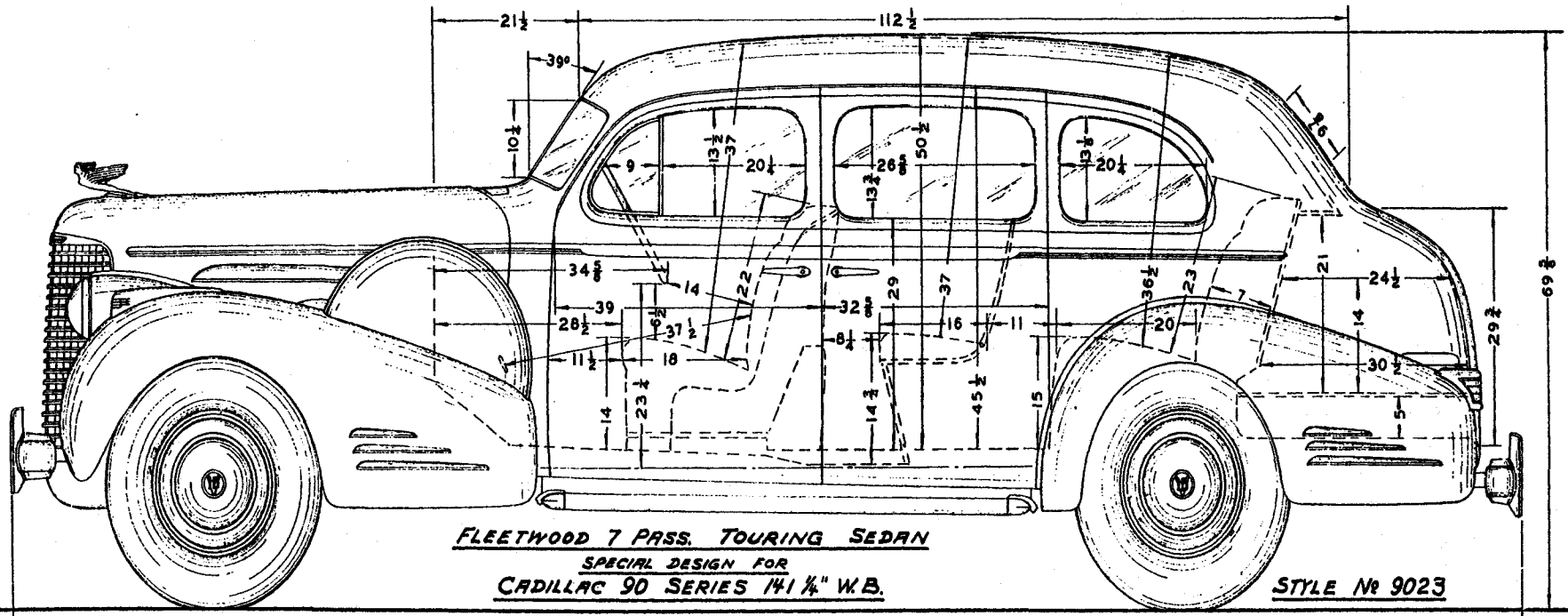
Smoking Equipment: Two ash receivers and two pass-around lighters located at front of rear compartment side arm rests; pass-around lighter in instrument panel recess; ash receiver in right center instrument panel grille.

Division: Between front and rear compartments, no header board, modified side pillars, glass may be raised or lowered; operated by control handle on center of division.

Equipment: Two triangular shaped spring type foot hassocks, plush carpet covered to match floor carpet; assist straps on rear pillars, two assist handles at ends of robe cord; folding rear seat center arm rest; arm rests on each front door; slash pockets on inside each rear arm rest.

FRONT SEAT MOVES 4" FROM
REAR POSITION SHOWN





FLEETWOOD 7 PASS. TOURING SEDAN
SPECIAL DESIGN FOR
CADILLAC 90 SERIES 141 1/4" W.B.

STYLE № 9023

CADILLAC SIXTEEN

7-PASSENGER SEDAN

STYLE NO. 9023

Equipment and Appointments

Rear Quarters: Metal with quarter windows.

Front Seat: Entire front seat cushion and back rest adjustable 4″. Seat cushion has ¾″ rise. Seat frame integral with center body pillars.

Rear Seat: Seat cushion and seat back stationary.

Lighting: Dome light operated by rear doors and left center pillar switch; two rear corner lights operated by left rear pillar switch.

Windows: Front doors are equipped with individually controlled ventilation feature; rear quarter windows move rearwardly 3½″. All windows Security Plate Glass.

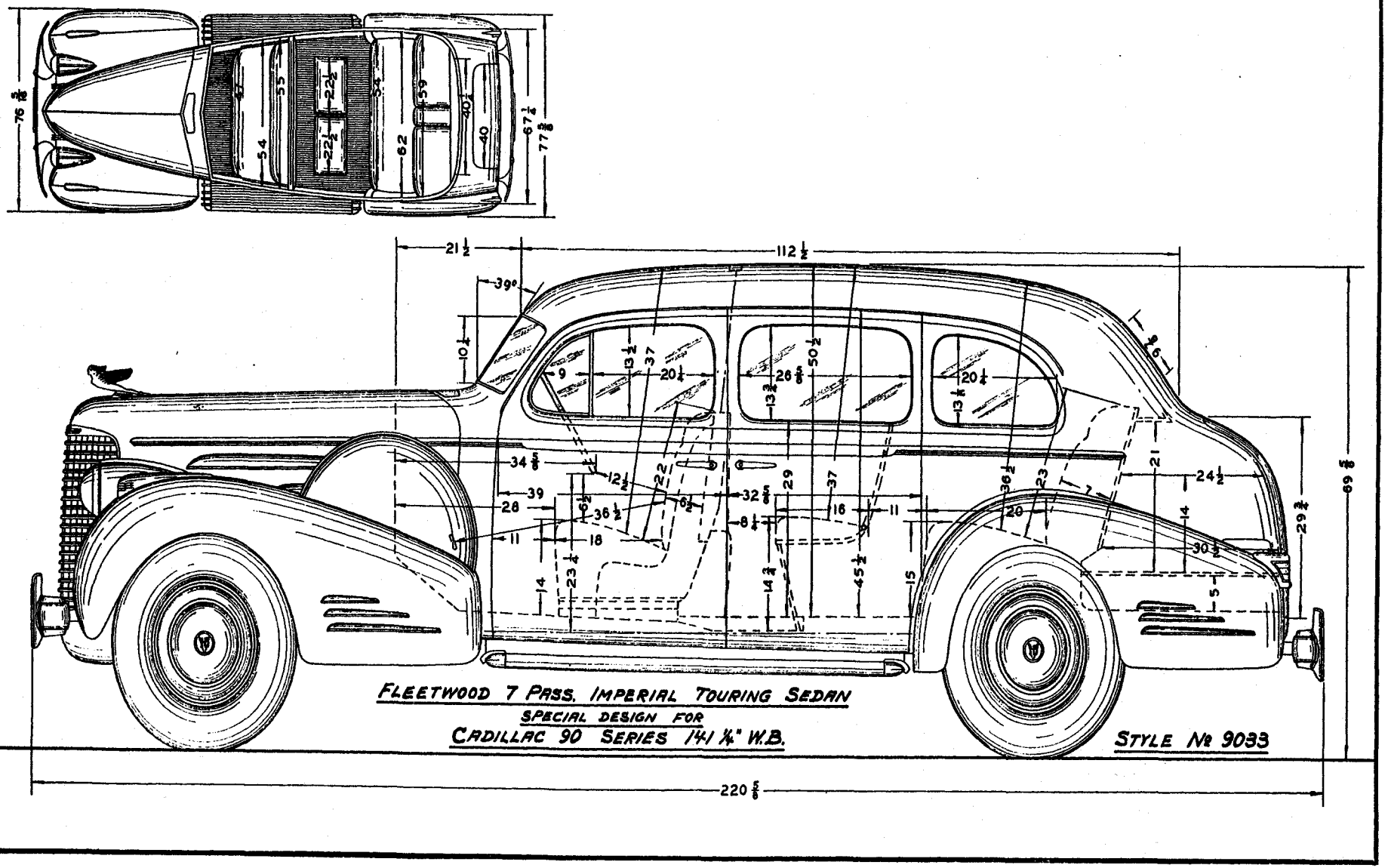
Interior Panels: Natural burled walnut.

Trim: Ten Weise cloths; tan, gray or brown; exclusive patterns; tufted mode.

Smoking Equipment: Two ash receivers and two pass-around lighters located at front of rear compartment side arm rests; pass-around lighter in instrument panel recess. Ash receiver located in right center instrument panel grille.

Extra Seats: Two facing forward, luxuriously upholstered with Marshall springs; double throw backs, providing room for three passengers, form neat panel in seat back when not in use; no latches or zippers.

Equipment: Foot rest, oval shaped, double adjustable, rubber filled, plush carpet covered to match floor carpet; silk rear window curtain; two sliding arm slings; assist handles at both ends of robe cord; assist grips on rear quarter pillars; folding rear seat center arm rest; arm rest on each front door; slash pockets in side of each rear arm rest.


FLEETWOOD 7 PASS. IMPERIAL TOURING SEDAN
SPECIAL DESIGN FOR
CADILLAC 90 SERIES 141 ¼" W.B.
STYLE № 9033

CADILLAC SIXTEEN

7-PASSENGER IMPERIAL

STYLE NO. 9033

Equipment and Appointments

Rear Quarters: Metal with quarter windows.

Front Seat: Stationary, seat back solid divided cushion.

Rear Seat: Seat cushion and seat back stationary.

Lighting: Dome light operated by rear doors and left rear pillar switch, two rear corner lights operated by right rear pillar switch, additional dome light in front compartment.

Windows: Front doors and rear quarter windows are equipped with individually controlled ventilation feature. Rear quarter windows move rearwardly 3½". All windows Security Plate Glass.

Interior Panels: Natural burled walnut.

Trim: Front compartment in special down leather, black. Rear compartment in ten Weise cloths; tan, gray or brown; exclusive patterns; tufted mode.

Smoking Equipment: Two ash receivers and two pass-around lighters located at front of rear compartment side arm rests. Pass-around lighter on instrument board; ash receiver located in right center of instrument panel grille.

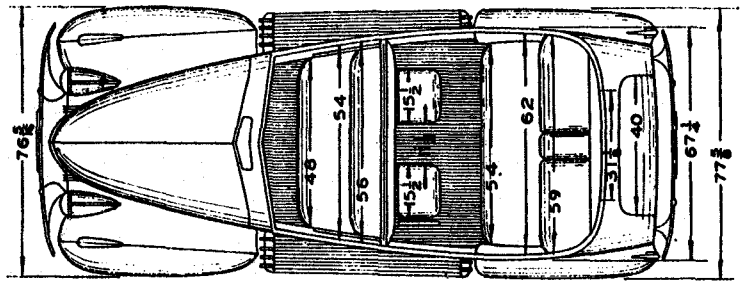
Division: Division with header bar and side pillars. The glass may be raised and lowered between front and rear compartments; Security Plate Glass.

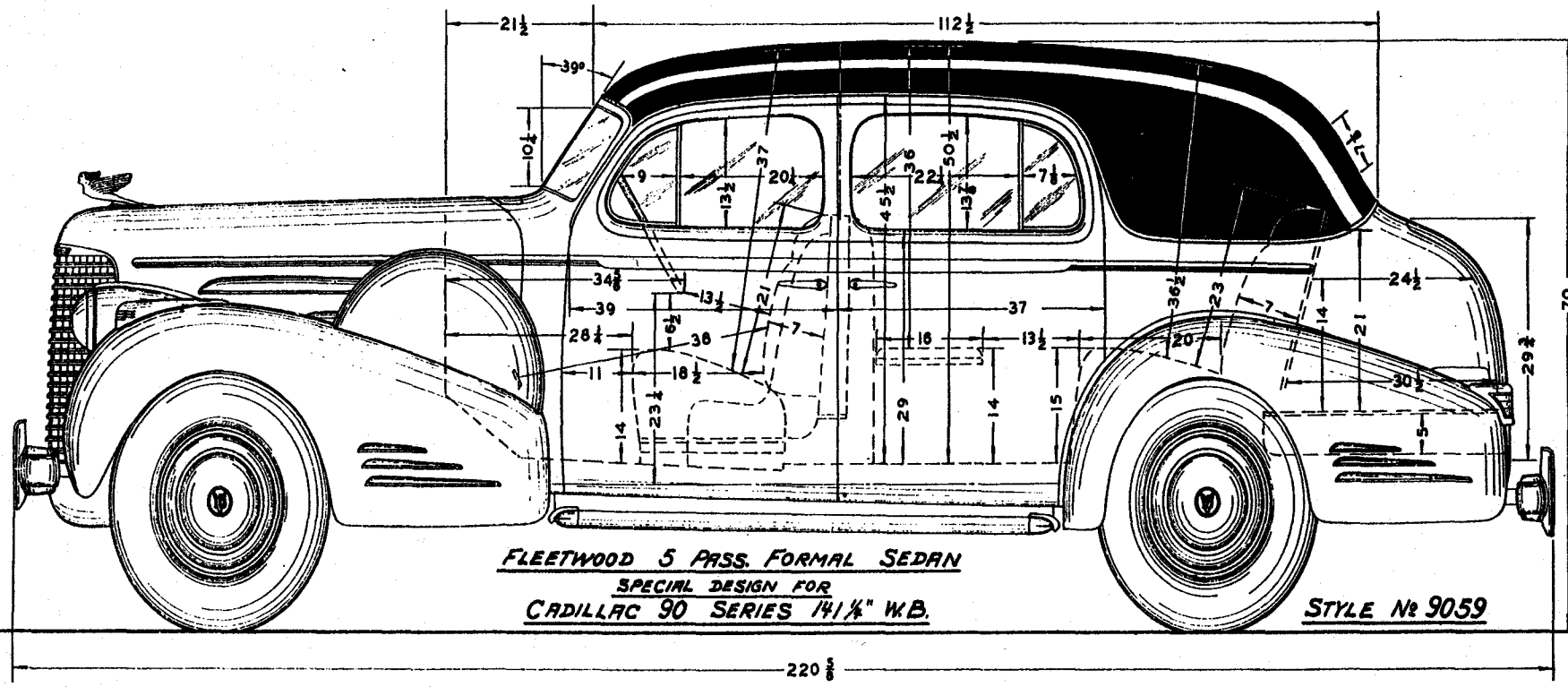
Telephone: New design "Motorphone" consists of detachable microphone, cord and integral push button assembly located in slash pocket on right hand rear quarter above arm rest.

Extra Seats: Two forward facing, luxuriously upholstered with Marshall Springs; double throw-backs; sufficient room for three passengers; concealed in front seat back when not in use; neat panel appearance; no latches or zippers.

Equipment: Foot rest, oval shaped, double adjustment sponge rubber filled, plush carpet covered to match floor carpet; two sliding arm slings; folding center arm rest in rear seat back, arm rest on each front door; assist grips on rear pillars; two assist handles at ends of robe cord; hand mirror carried in slash pocket left hand side; electric clock recessed in division center panel.

REVISED 12-15-37





FLEETWOOD 5 PASS. FORMAL SEDAN
SPECIAL DESIGN FOR
CADILLAC 90 SERIES 141¼" W.B.

STYLE № 9059

CADILLAC SIXTEEN

5-PASSENGER FORMAL SEDAN

STYLE NO. 9059

Equipment and Appointments

Roof and Rear Quarters: Genuine English Landau leather no quarter windows, not collapsible.

Front Seat: Stationary, upholstered in same material as rear compartment unless otherwise specified.

Rear Seat: Seat cushion and seat back stationary.

Lighting: Dome light operated by rear doors and left rear pillar switch; two rear corner lights operated by right rear pillar switch; additional dome light in front compartment.

Windows: Front and rear doors are equipped with individually controlled ventilation; Security Plate Glass.

Interior Panel: Natural burled walnut.

Trim: Ten Weise cloths; tan, gray or brown; exclusive patterns; tufted mode.

Smoking Equipment: Concealed type cases containing ash receivers and pass-around lighters located in the rear quarters above side arm rest; pass-around lighter on instrument board; ash receiver in right center instrument panel grille.

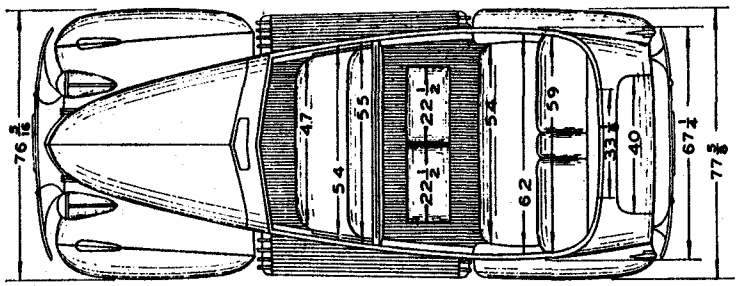
Division: Between front and rear compartments, no header board, modified side pillars, glass may be raised or lowered, operated by control handle on center of division.

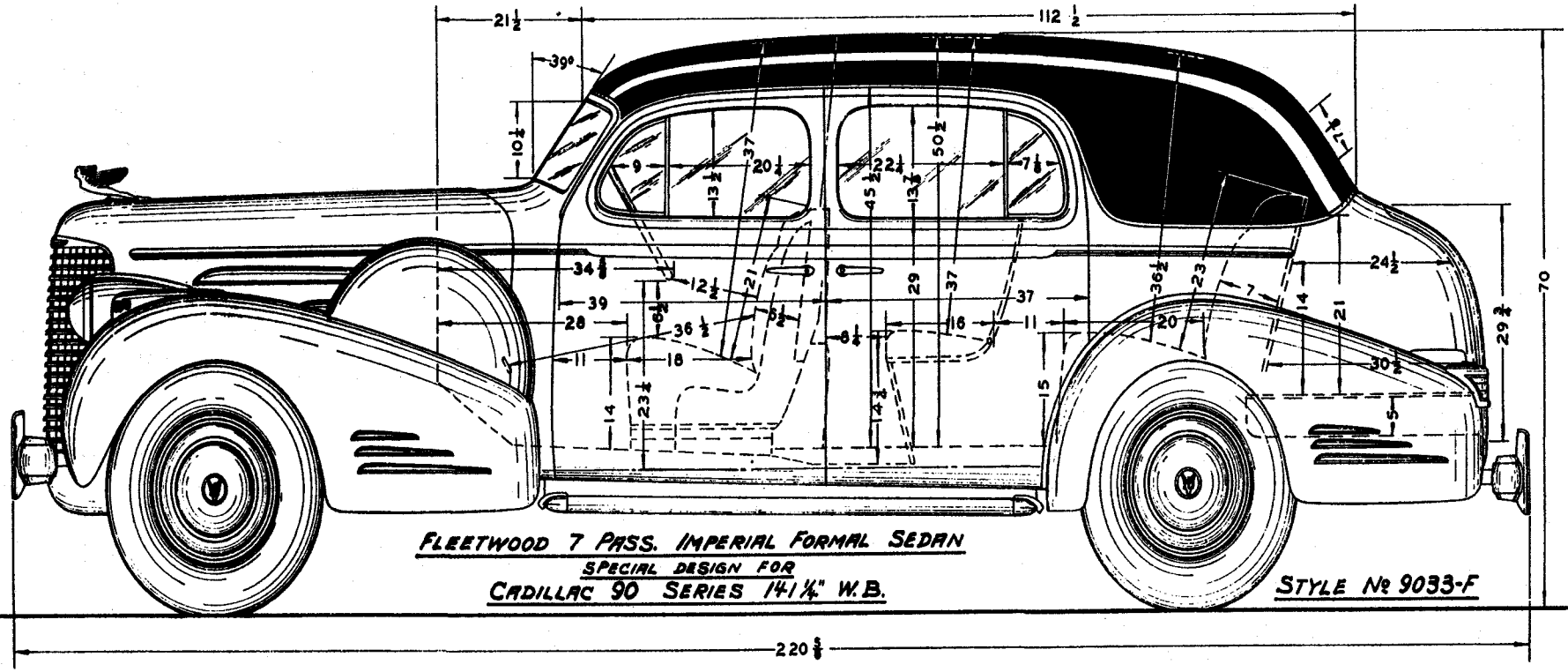
Telephone: New design "Motorphone" consists of detachable microphone, cord and integral push button assembly located in slash pocket on right hand rear quarter above arm rest.

Extra Seats: Two opera type, left seat facing right side with lazy back, right seat facing rear, concealed in division when not in use. Neat panel appearance; no latches or zippers.

Equipment: Two triangular shaped spring type foot hassocks, plush carpet covered to match floor carpet; two sliding arm slings; grip handles installed on rear door hinge pillar; two assist handles at ends of robe cord; folding rear seat center arm rest; arm rests on each front door; hand mirror carried in slash pocket, left hand side; electric clock in front seat back.

REVISED 12-15-37





FLEETWOOD 7 PASS. IMPERIAL FORMAL SEDAN
SPECIAL DESIGN FOR
CADILLAC 90 SERIES 141¼" W.B.

STYLE Nº 9033-F

CADILLAC SIXTEEN

7-PASSENGER FORMAL SEDAN

STYLE NO. 9033-F

Equipment and Appointments

Roof and Rear Quarters: Genuine English Landau leather, no quarter windows, not collapsible.

Front Seat: Stationary, seat back solid, divided cushion.

Rear Seat: Seat cushion and seat back stationary.

Lighting: Dome light operated by rear doors and left rear pillar switch; two rear corner lights operated by right rear pillar switch; additional dome light in front compartment.

Windows: Front and rear doors are equipped with individually controlled ventilation; Security Plate Glass.

Interior Panels: Natural burled walnut.

Trim: Front compartment in special down leather, black. Rear compartment in ten Weise cloths in exclusive patterns, tan, gray or brown, tufted mode.

Smoking Equipment: Concealed type cases containing ash receivers and pass-around lighters located in the rear quarters above side arm rests. Pass-around lighter on instrument board; ash receiver located in right center of instrument panel.

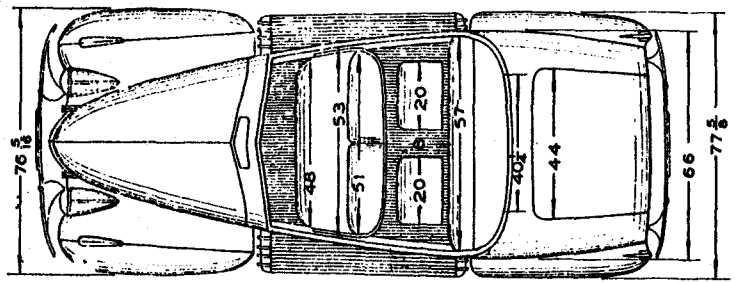
Division: Division with header bar and side pillars. The glass may be raised and lowered between front and rear compartments; Security Plate Glass.

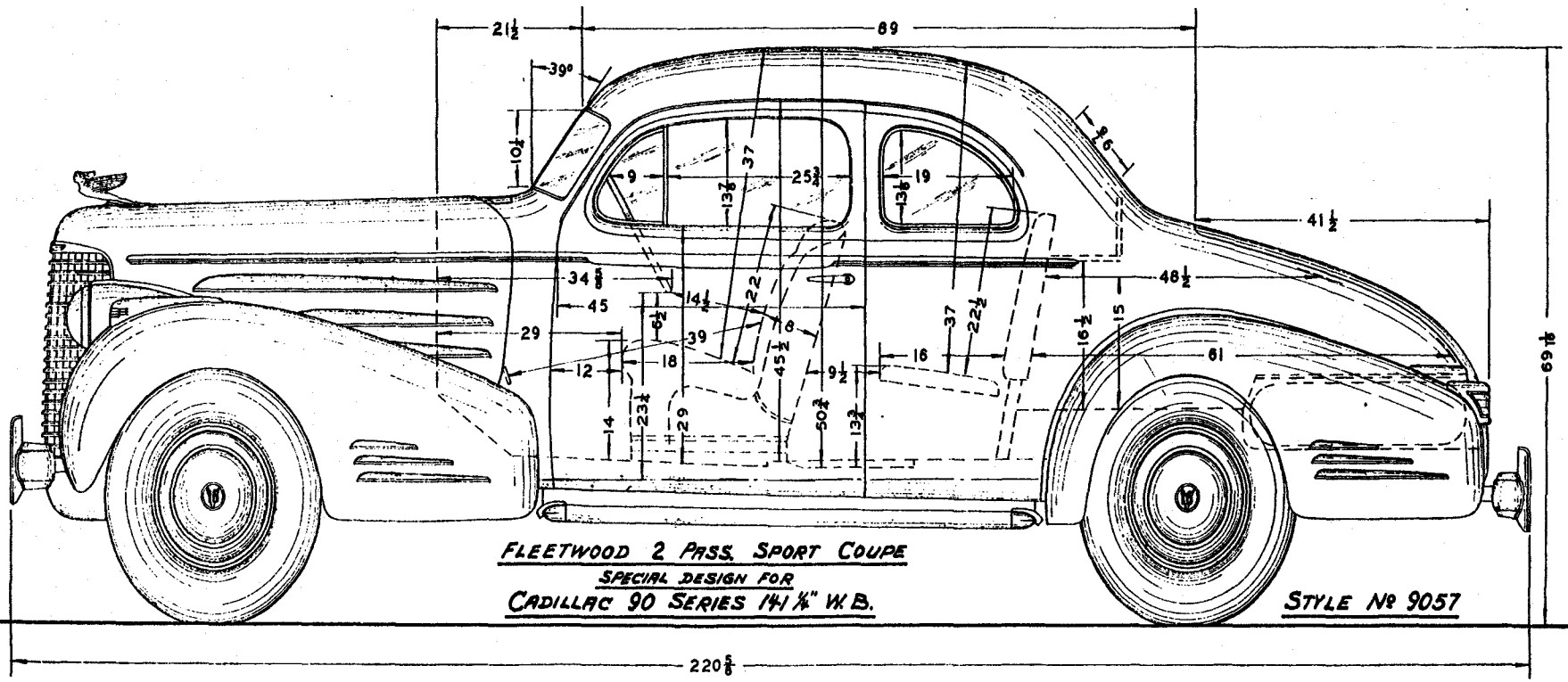
Telephone: New design "Motorphone" consists of detachable microphone, cord and integral push button assembly located in slash pocket on right hand rear quarter above arm rest.

Extra Seats: Two forward facing, luxuriously upholstered with Marshall springs; double throw-backs; sufficient room for three passengers; concealed in front seat back when not in use; neat panel appearance; no latches or zippers.

Equipment: Foot rest, oval shaped, double adjustment sponge rubber filled, plush carpet covered to match floor carpet; two sliding arm slings; assist grips on rear pillars; folding center arm rest in rear seat back; arm rest on each front door; two assist handles at ends of robe cord; hand mirror carried in slash pocket left hand side; electric clock recessed in front seat back.

FRONT SEAT MOVES 4" FROM
REAR POSITION SHOWN





FLEETWOOD 2 PASS. SPORT COUPE
SPECIAL DESIGN FOR
CADILLAC 90 SERIES 141 ½" W.B.

STYLE Nº 9057

CADILLAC SIXTEEN

2-PASSENGER COUPE

STYLE NO. 9057

Equipment and Appointments

Rear Quarter: Metal with quarter windows.

Front Seat: Straight across with seat fully adjustable 4″ with ¾″ rise, back only divided; seat backs swing forward allowing access to opera seats or luggage compartment as desired.

Opera Seats: Located behind front seat, facing forward, fold when not in use.

Interior Panels: Natural burled walnut.

Trim: Ten Weise cloths; tan, gray or brown; exclusive patterns; tufted mode.

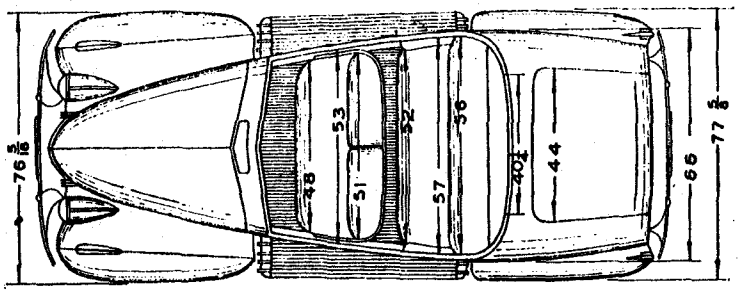
Smoking Equipment: Pass-around cigar lighter located in instrument panel recess; ash receiver in right center of panel grille and on both rear side quarters.

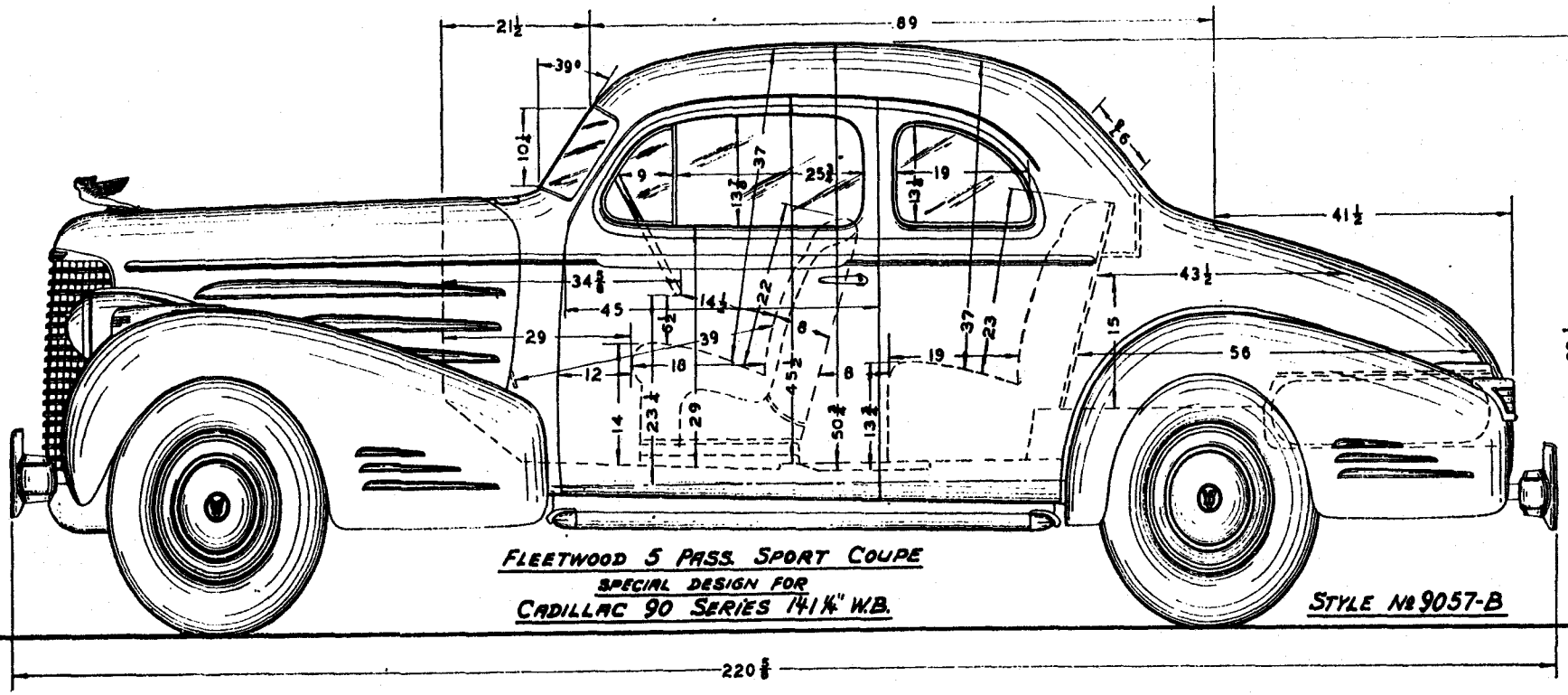
Lighting: Dome light controlled by both doors and right hand pillar switch.

Windows: Doors equipped with individually controlled ventilation feature. Rear quarter window slides rearwardly. All windows Security Plate Glass

Equipment: Side arm rest on doors; silk curtain on back window; two interior sun visors, fully adjustable; assist grips on right and left pillars; robe cords on each side of divided front seat back; recessed foot rest; large luggage compartment below rear deck.

FRONT SEAT MOVES 4" FROM
REAR POSITION SHOWN





FLEETWOOD 5 PASS. SPORT COUPE
SPECIAL DESIGN FOR
CADILLAC 90 SERIES 141 1/4" W.B.

STYLE No 9057-B

CADILLAC SIXTEEN

5-PASSENGER COUPE

STYLE NO. 9057-B

Equipment and Appointments

Rear Quarter: Metal with quarter windows.

Front Seat: Straight across with seat fully adjustable 4" with ¾" rise, back only divided; seat backs swing forward allowing access to rear seat.

Rear Seat: Full across behind front seat, stationary.

Interior Panels: Natural burled walnut.

Trim: Ten Weise cloths; tan, gray or brown; exclusive patterns; tufted mode.

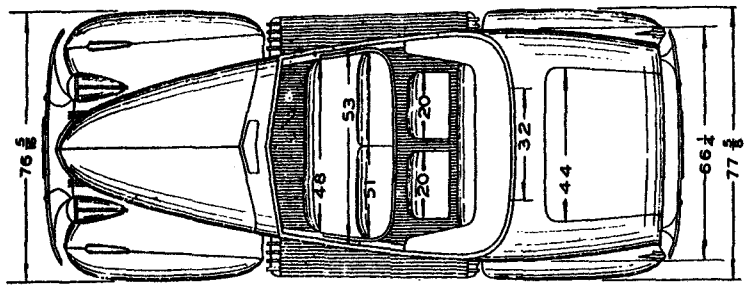
Smoking Equipment: Pass-around cigar lighter located in instrument panel recess; ash receiver in right center of panel grille and forward of both rear seat arm rests.

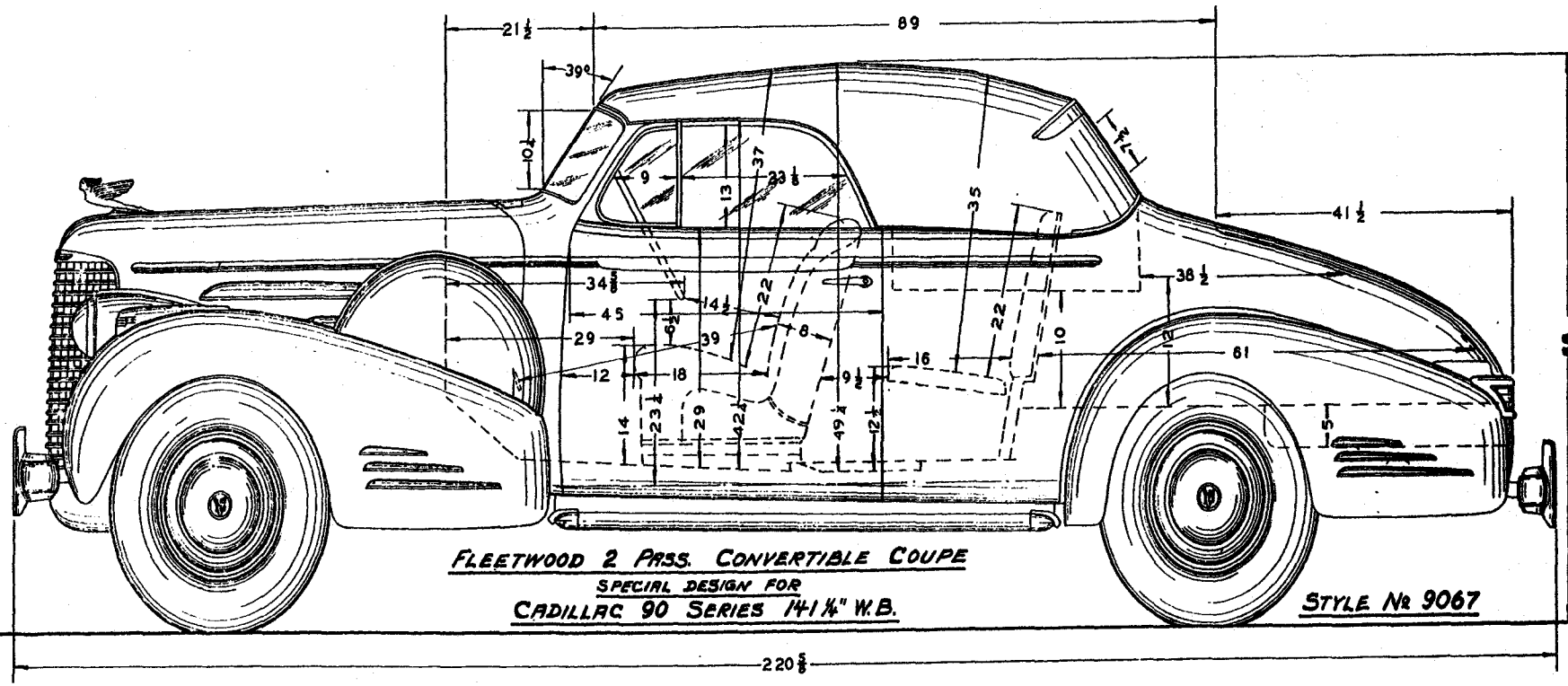
Lighting: Dome light operated by rear doors and right rear pillar switch.

Windows: Doors equipped with individually controlled ventilation feature. All windows Security Plate Glass.

Equipment: Side arm rest on doors; silk curtain on back window; two interior sun visors, fully adjustable; assist grips on right and left pillars; slash pockets in side arm rests; robe cords on each side of divided front seat back; recessed foot rest; large luggage compartment below rear deck.

FRONT SEAT MOVES 4" FROM
REAR POSITION SHOWN





FLEETWOOD 2 PASS. CONVERTIBLE COUPE
SPECIAL DESIGN FOR
CADILLAC 90 SERIES 141 1/4" W.B.

STYLE № 9067

CADILLAC SIXTEEN

CONVERTIBLE COUPE

STYLE NO. 9067

Equipment and Appointments

Top and Rear Quarters: Burbank fully collapsible, folding into special compartment fully concealed.

Front Seat: Straight across with seat fully adjustable 4″ with ¾″ rise on seat cushion, back only divided, seat backs swing forward allowing access to opera seats.

Opera Seats: Two, directly behind front seat, facing forward, folded when not in use.

Smoking Equipment: Pass around cigar lighter located in instrument panel recess; ash receiver in right center of panel grille and on both rear side quarters.

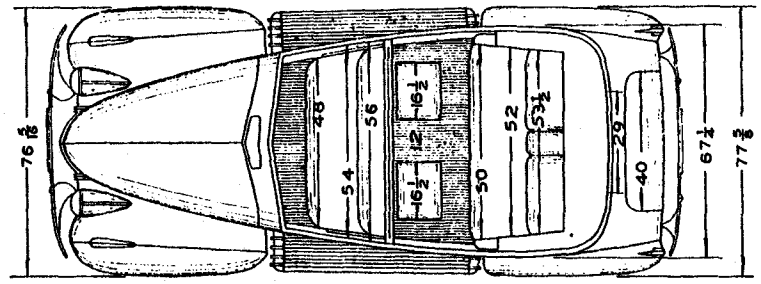
Interior Panels: Natural burled walnut.

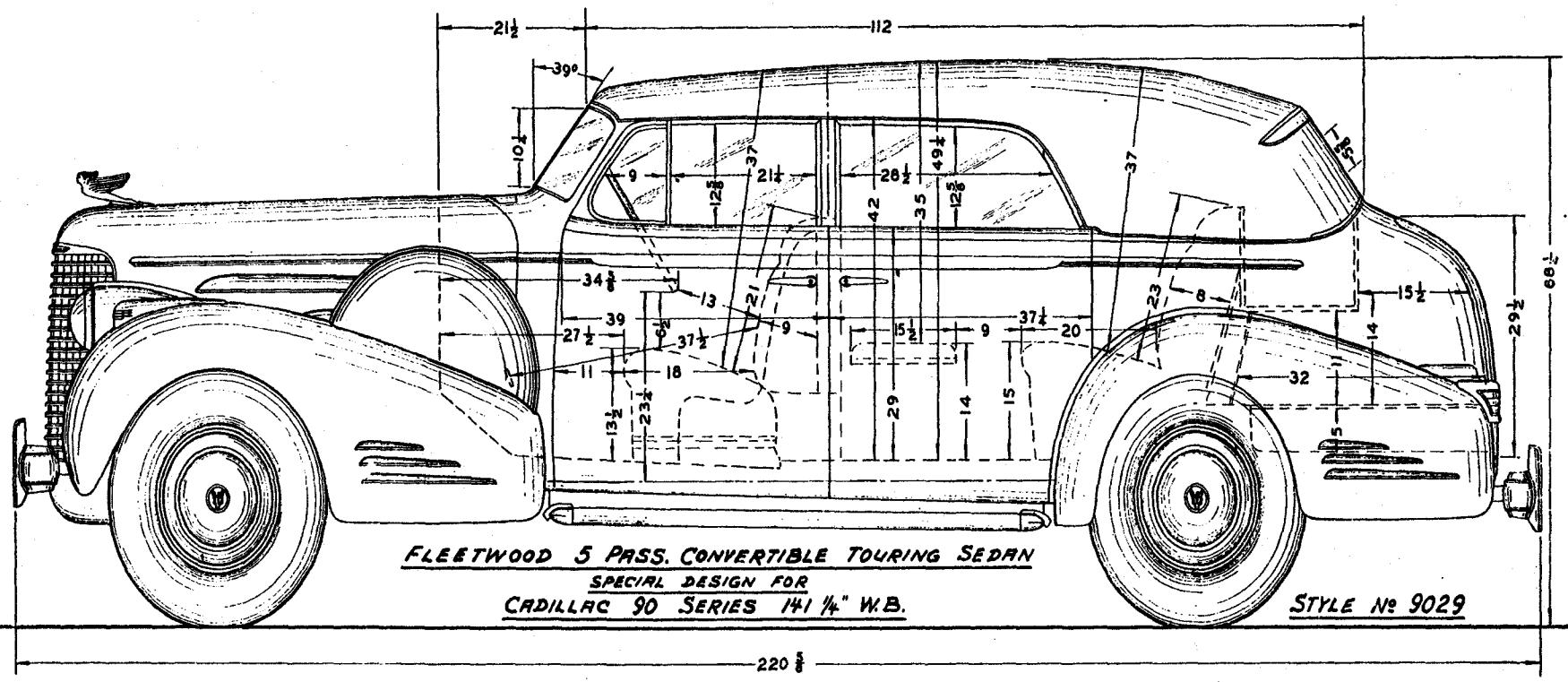
Trim: Options of black, tan, gray, green or blue genuine cowhide; tan or gray Bedford Cords.

Windows: Doors are equipped with individually controlled ventilation feature. All windows Security Plate Glass.

Equipment: Side arm rests on doors; two interior sun visors, adjustable; robe cords on each side of divided front seat back; recessed foot rest; large luggage compartment under rear deck; dust boot for top when folded.

OPERA SEATS OPTIONAL EQUIPMENT
EXTRA CHARGE





FLEETWOOD 5 PASS. CONVERTIBLE TOURING SEDAN
SPECIAL DESIGN FOR
CADILLAC 90 SERIES 141 ¼" W.B.

STYLE Nº 9029

CADILLAC SIXTEEN
CONVERTIBLE SEDAN
STYLE NO. 9029

Equipment and Appointments

Top and Rear Quarters: Burbank fully collapsible folding into special compartment fully concealed.

Front Seat: Stationary.

Rear Seat: Seat cushion and seat back stationary.

Interior Panels: Natural burled walnut.

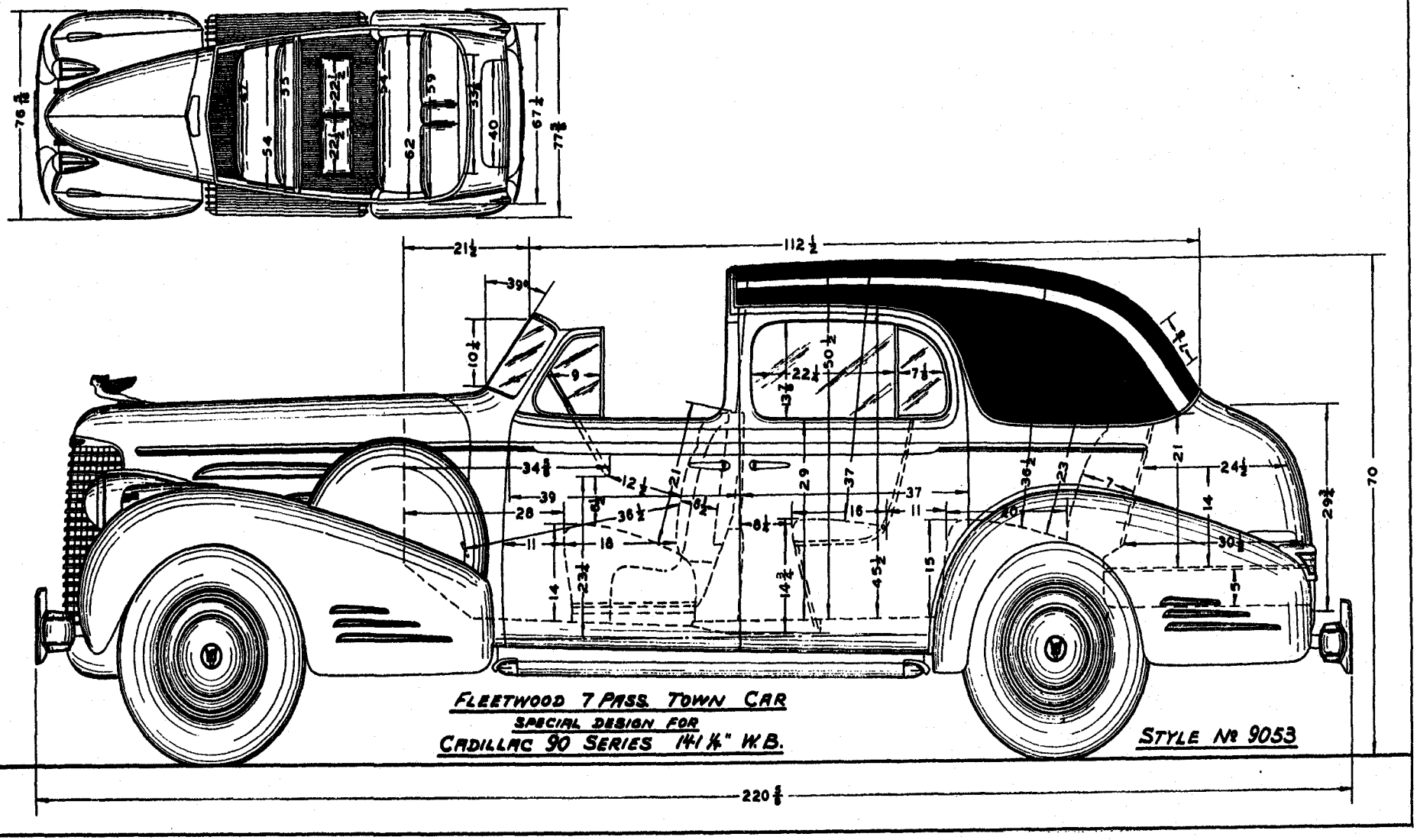
Trim: Tan, gray, green, blue or black genuine cowhide leathers; tan or gray Bedford Cord.

Lighting: Courtesy lights recessed in front of rear compartment side arm rests, operated by switches on right and left pillars and switch on right rear arm rest.

Windows: Front doors are equipped with individually controlled ventilation feature. All windows Security Plate Glass.

Smoking Equipment: Two pass-around lighters recessed in front of ash receivers, located in front of rear side arm rests. Pass-around lighter in instrument panel recess, ash receiver in right center panel grille.

Equipment: Two triangular shaped spring type foot hassocks, plush carpet covered to match floor carpet, two interior sun visors, adjustable; folding center arm rest in rear seat back; arm rest on each front door; leather robe cord, dust boot for top when folded.



FLEETWOOD 7 PASS. TOWN CAR
SPECIAL DESIGN FOR
CADILLAC 90 SERIES 141 ½" W.B.

STYLE № 9053

CADILLAC SIXTEEN

TOWN CAR

STYLE NO. 9053

Equipment and Appointments

Roof and Rear Quarters: Genuine English Landau leather, no quarter windows, not collapsible. Front compartment has collapsible roof.

Front Seat: Stationary, seat back solid.

Rear Seat: Seat cushion and back stationary.

Lighting: Dome light operated by rear doors and left rear pillar switch; two rear corner lights, right rear pillar switch.

Windows: All Security Plate Glass. All equipped with I. C. V.

Interior Panels. Natural burled walnut.

Trim: Front compartment in genuine black cowhide; rear compartment in ten exclusive Weise cloth patterns; tan, gray or brown; tufted mode.

Smoking Equipment: Concealed type cases containing ash receivers and pass-around lighters located above side arm rests; pass-around lighter in instrument panel recess; ash receiver located in right center of instrument panel grille.

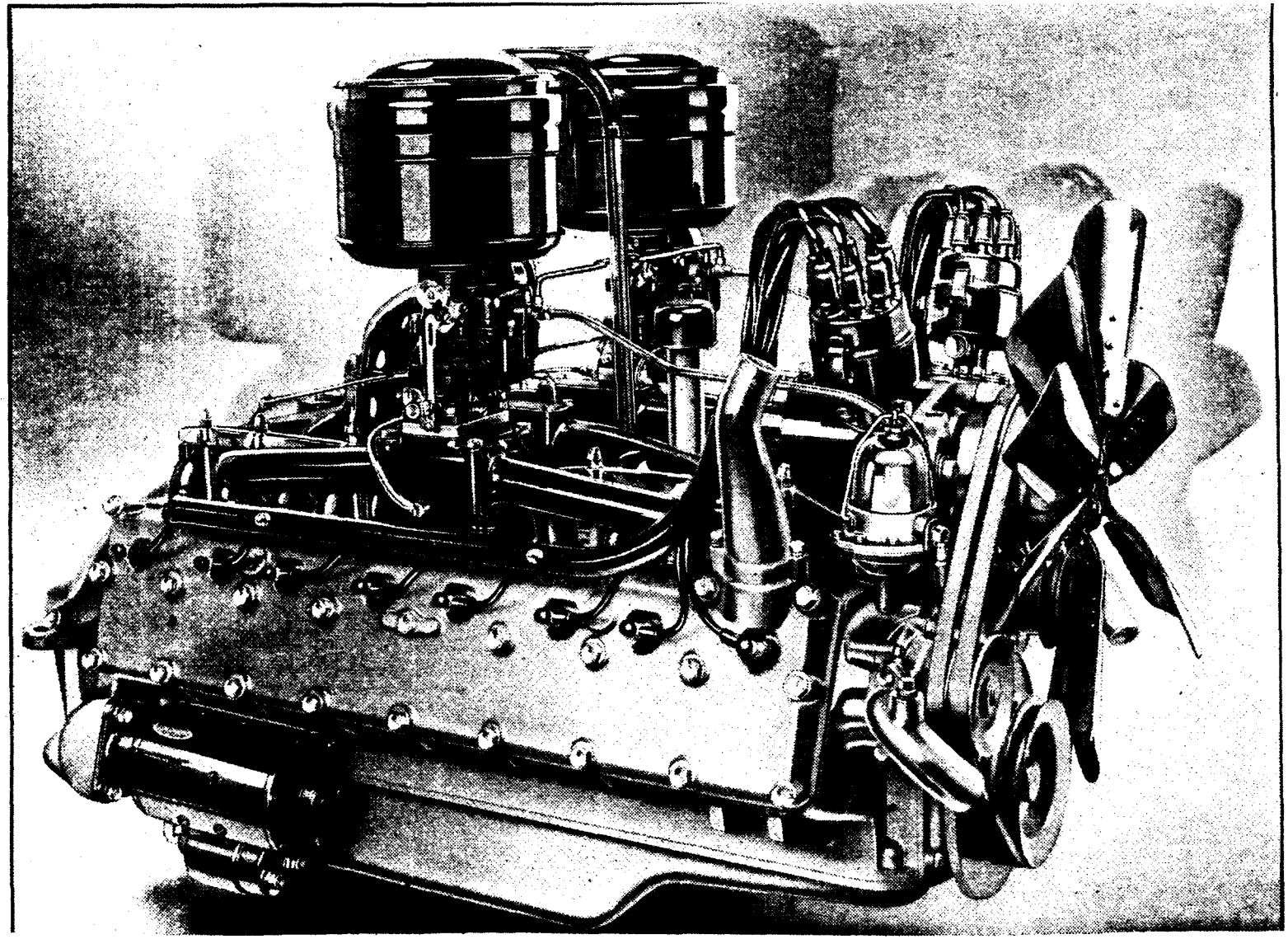
Division: With header board and side pillars; glass may be raised and lowered between front and rear compartments. Security Plate Glass.

Telephone: New design "Motorphone", detachable microphone, cord and integral push button assembly located in slash pocket on right hand rear quarter above arm rest.

Extra Seats: Two facing forward, luxuriously upholstered with Marshall springs, double throw backs, providing room for three passengers, concealed when not in use; neat panel appearance; no latches or zippers.

Equipment: Two triangular shaped spring type foot hassocks, plush carpet covered to match floor carpet; two sliding arm slings; grip handles located on right and left hand hinge pillars; assist handles on both ends of robe cord; folding center arm rest in rear seat back; arm rest on each front door; hand mirror carried in slash pocket, left hand side; electric clock recessed in division center panel.

REVISED 12-15-37



The 135° V-type Sixteen Cylinder Engine

SIXTEEN CYLINDER ENGINE

The 1938 Cadillac sixteen cylinder engine is the result of several years' development by Cadillac engineers for the purpose of making sixteen cylinder smoothness and performance available to a great many more motorists. To accomplish this purpose, a power plant has been designed in which sixteen cylinders totaling 431 cubic inches displacement require no greater hood length than was required for the former V-12 engine. Also, the new Sixteen engine, although much larger, is actually lighter than the former V-12. Unusual compactness, economical service and extreme durability have been realized by the combination of a very short stroke, a V-angle of 135 degrees and an enbloc casting of cylinder banks and crankcase. Other unique features of design are the disposition of dual engine accessories; two dual downdraft carburetors, two manifold systems, two distributors, two coils, two fuel pumps, two water pumps, two fan belts. Each bank of eight cylinders is in running balance, hence the new Sixteen engine will operate more smoothly on one bank of cylinders than most eight cylinder automobiles.

The bore is 3¼ inches, the stroke 3¼ inches.

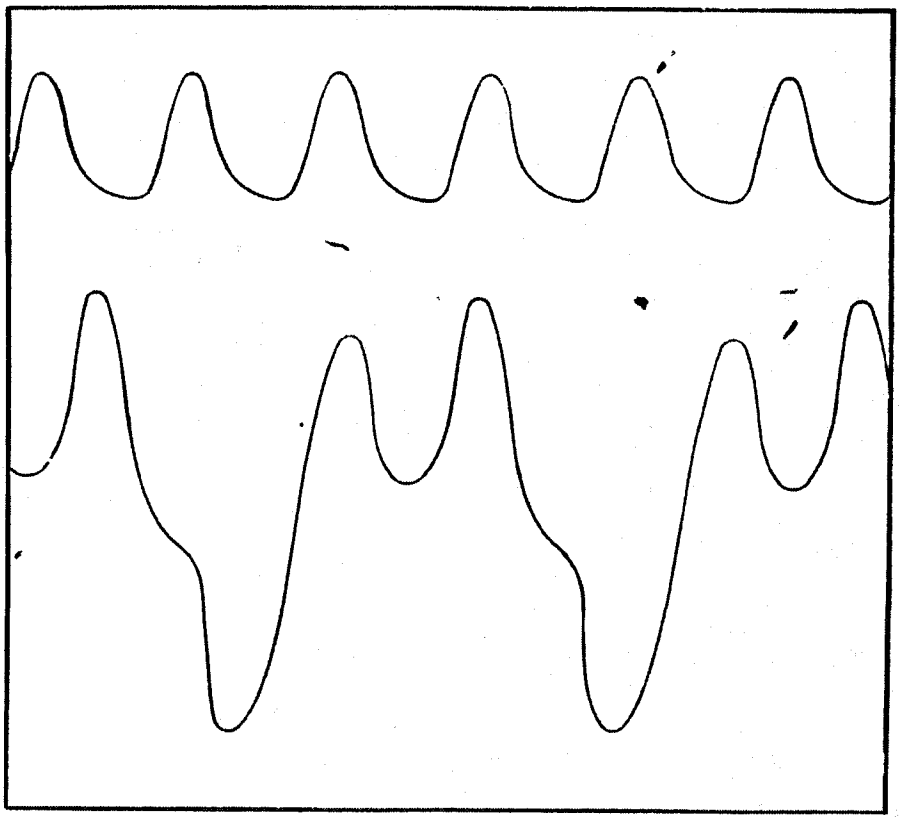
REVISED 12-15-37

Advantages of Sixteen Cylinders

Sixteen cylinders have been chosen for the world's most luxurious motor car because of the many advantages inherent in such a design.

Smoothness: This engine is the smoothest in automotive use in the world today because its sixteen small cylinders give explosive impulses every 45 degrees of crankshaft revolution and generate an almost continuous flow of power. This is V-type design as near perfection as only Cadillac could build.

A graphic comparison of the low speed torque impulses (engine fluctuation due to power generated with each engine revolution) of the Cadillac Sixteen with



(Above) Sixteen Torque Curve
(Below) Typical 12 Torque Curve

those of a typical twelve cylinder engine of approximately the same size shows a harmonious flowing curve for the Sixteen and an irregular, impulsive curve

for the twelve. Furthermore, as the speed increases, the Sixteen fluctuations become smaller while the V-12 fluctuations increase. The twelve cylinder vibration curve variations reach a maximum when coasting at high speed, whereas the Sixteen torque variations become zero, represented by a straight line, under these conditions.

Durability: Because the displacement of each cylinder of a sixteen cylinder engine may be smaller, the very short stroke of 3¼ inches is possible. This engine has the lowest piston travel of any American made automobile. This is in conformance with Cadillac practice of a large engine of tremendous reserve power yet always operating slowly, thereby achieving longer engine life and operating economy. Piston travel of the new Sixteen engine is 1590 feet per mile: of a typical twelve, 2270; of LaSalle V-8 and Cadillac Sixty, 2080.

The short stroke reduces the inertia forces of the reciprocating pistons. Connecting rod bearing loads are thus reduced, thereby increasing durability. The short stroke contributes still further to connecting rod bearing life because shorter and lighter rods may be used. With the short stroke and light impulses two inch diameter crankpins afford extreme rigidity and reduce rod bearing friction.

Small bore engines wear less than large bore engines having the same piston travel. The use of sixteen cylinders makes it possible to use a relatively small piston despite the very short stroke.

Performance: Sixteen cylinders permit large displacement for a given hood length. Furthermore, the small cylinders permit the use of the high 6.8 to 1 compression ratio which increases combustion efficiency, resulting in greater power development relative to engine

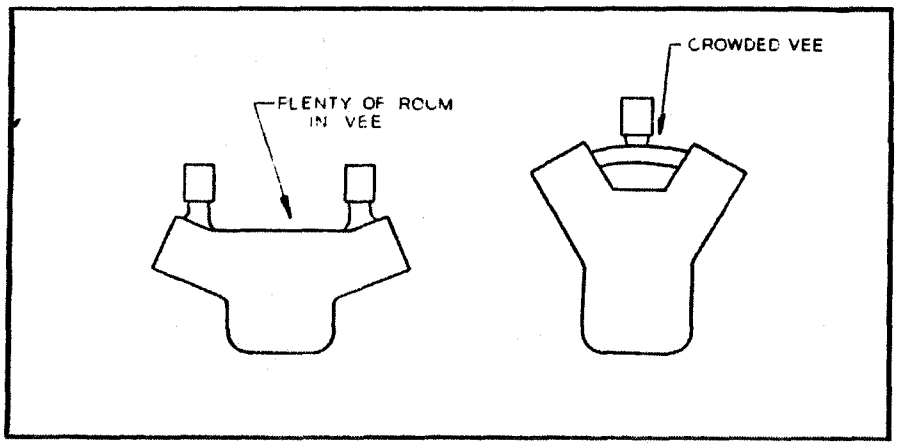
REVISED 12-15-37

size and increasing fuel economy. The new engine delivers about the same amount of power as the larger 1937 V-16, being rated at 185 horsepower.

Although the new engine develops as much power as the previous V-16, it has a much lighter vehicle to pull. Performance is, therefore, far better than any automobile heretofore built by Cadillac, better in fact than any passenger car ever built in this country. Maximum speed is well above one hundred miles per hour.

Advantages of 135 Degree V Angle

Smoothness: The 135 degree angle between cylinder blocks gives uniformly spaced power impulses. Uniform spacing of the impulses increases smoothness. The irregularities of the V-12 curve illustrated on page 206 are due to unequal spacing of the explosive forces, as determined by the V angle. The V angle also influences torque fluctuations due to the inertia forces of the reciprocating pistons. In the 135° Sixteen the torque fluctuations from this source are zero. In a V-12 with a V angle of other than 60 degrees (there

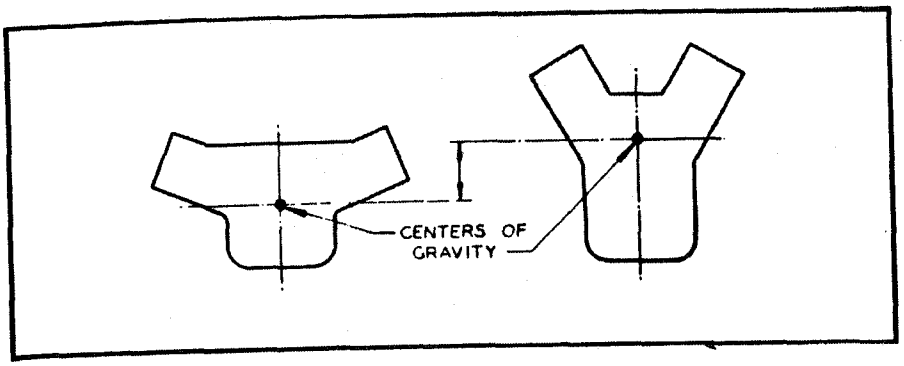


New Sixteen *Typical Twelve*

are no 60 degree V-12's because such an angle gives an impractically crowded V) the inertia forces increase with speed, causing torque fluctuations to increase also

at higher speeds and to be very pronounced on acceleration.

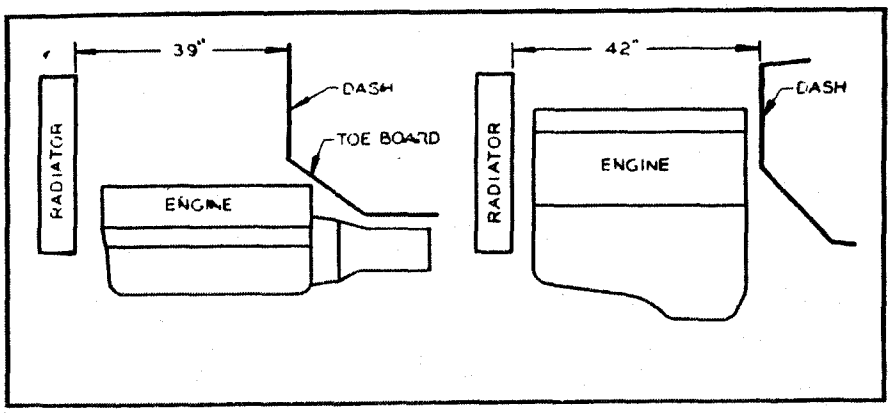
Service Accessibility: The wide V angle permits easy servicing of intake and exhaust systems and of the valve gear. All dual accessories, such as carburetors, distributors, fuel pumps, are conveniently arranged. Pistons and connecting rods may be removed from above.



New Sixteen *Typical Twelve*

Low Center of Gravity: The 135 degree angle materially lowers the weight center of the entire engine assembly, increasing high speed driving stability.

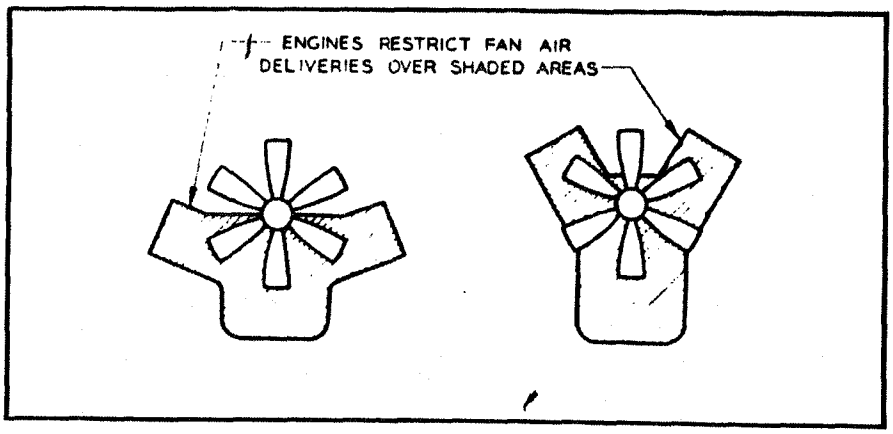
Increased Body Space: The "flat" engine design permits the body dash to be moved forward, thus increasing body space and passenger legroom.



New Sixteen *Typical Twelve*

More Efficient Cooling: The conventional V-type engine masks almost the entire area of the cooling fan. This is avoided on Cadillac and LaSalle V-8's by

placing these short engines well in the rear of the fan. On a longer V-12 it is impossible to avoid reduction of fan efficiency. On the Sixteen, however, half of the



New Sixteen *Typical Twelve*

complete fan diameter is entirely unblocked and the upper portion of the radiator is unrestricted.

SIXTEEN ENGINE CONSTRUCTION

Enbloc Design

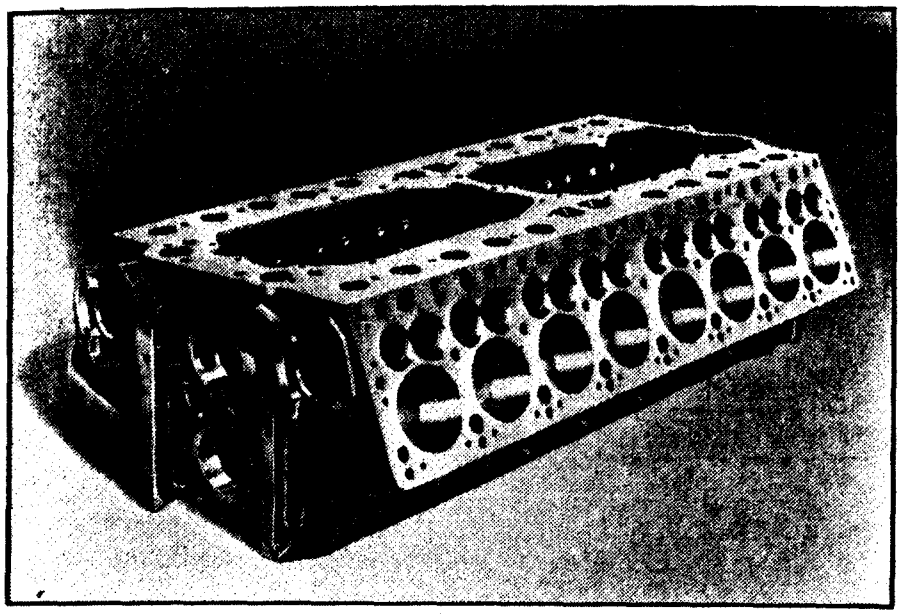
The extremely compact Sixteen engine permits spacious bodies on the 141 inch wheelbase. Bodies are equal or larger in all dimensions than those on the previous V-16 despite a thirteen inch reduction in wheelbase. The compact engine is largely due to one-piece unit design.

It is a great tribute to Cadillac's foundry practice that sixteen cylinders with long water jackets, side valves and ports and a nine bearing crankcase can be successfully produced in a single casting. The Cadillac and LaSalle V-8's have proved that the greater rigidity of enbloc design increases smoothness and that service maintenance is reduced because of the fewer number of joint surfaces subject to leakage or gasket troubles.

The enbloc engine is an important factor in weight reduction. The new 431 cubic inch Sixteen is lighter than the former 368 cubic inch V-12 with its light aluminum crankcase.

Crankcase and Cylinder Block

In general, the crankcase and cylinder block design follows the principles long proven satisfactory on the Cadillac V-8. The crankcase and the two eight-cylinder blocks are cast as a single unit from hard alloy steel and iron. Included angle between the cylinder bore axes is 135 degrees. The crankcase casting has seven ribbed bulkheads which increase rigidity and which, with their front and rear crankcase walls, support the nine main bearings. Since the camshaft is supported on five bearings, camshaft bearings are placed, in alternate bulkheads.



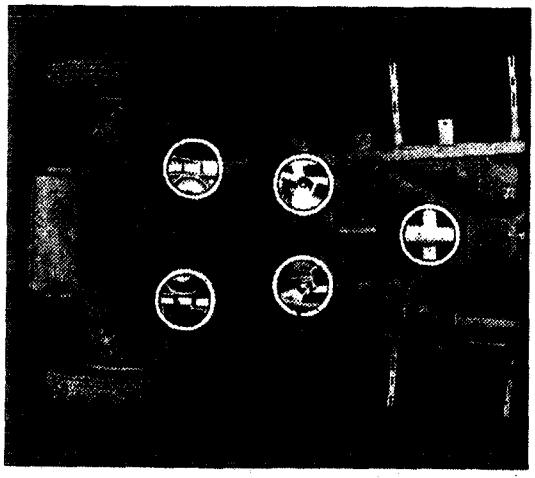
Enbloc Cylinder—Crankcase

Cylinder heads are cast of the same material as the block in accordance with Cadillac practice. Combustion chambers are machined all over to avoid variations in compression pressure between the cylinders.

The L-head combustion chambers and side valves were chosen as most suitable to the "flat" design. Because of the wide V angle there is ample room for the side valve mechanism. The excessive engine width which would be required by the greater cylinder head depth of the valve-in-head design is avoided.

Engine Mounting

The engine is supported at five points by live rubber mounts. There are two supports at the sides in front, two intermediate supports and a rear support on the

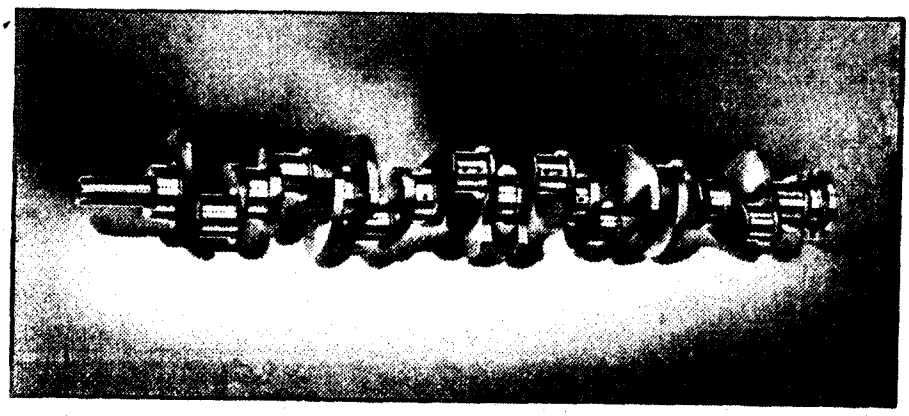


Location of 5-Point Mounts

transmission extension. The engine is, therefore, allowed to rock freely within a limited distance, while at the same time engine weight is utilized to reinforce front frame arms for refined roadability.

Crankshaft and Flywheel

Rigidity and smoothness are assured by the nine bearing counterweighted crankshaft. It is a high carbon steel forging carrying eight integral counterweights. Each of



Nine Bearing Crankshaft

the eight two-inch diameter crankpins carries two side-by-side connecting rods. The nine main bearing journals are $2\frac{1}{2}$ inches in diameter.

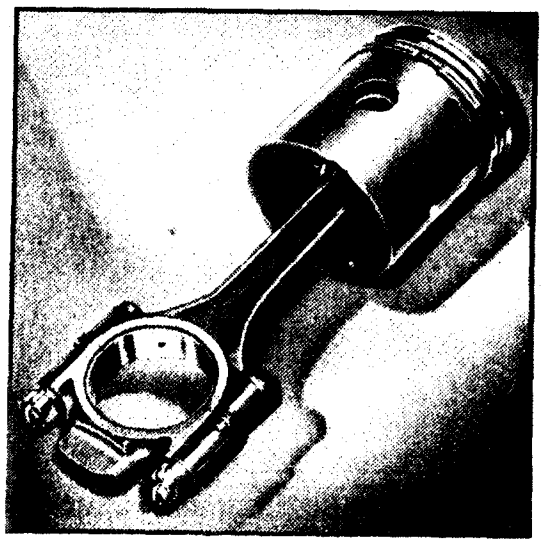
The nine main bearings assure resistance to bending forces while the two-inch crankpins and $2\frac{1}{2}$ inch journals are amply rigid against torsional vibration, or twisting forces, because of the light power impulses of the small cylinders and the small inertia forces due to the short stroke. The short stroke also permits the main bearing journals and crankpins to overlap by $\frac{5}{8}$ of an inch which adds further to rigidity.

A rubber torsional vibration dampener is included in the belt pulley assembly at the front of the engine. It is more compact than before and is added solely as a refinement.

Because of the short stroke, the many small cylinders, the rigid crankshaft and the nine main bearings, the Syncro-Flex flywheel, as used on Cadillac V-8, is unnecessary.

Pistons and Connecting Rods

Piston and connecting rod assembly has been specially designed for the new Sixteen. The wrist pin is locked in the rod and rotates in the piston. A lock screw in the



Small Piston and Short Connecting Rod

small end of the rod passes through a notch in the wrist pin, thus holding the pin against the rotation of the rod. This new design makes it unnecessary to rifle drill con-

necting rods. Two grooves inside each wrist pin bearing and running the full length of the pin distribute oil collected from the cylinder wall to the wrist pin bearing.

Because of the short stroke, the connecting rod length is only 6 3/8 inches. Nevertheless, a ratio of rod length to stroke of almost 2 to 1 is maintained. The short, light manganese steel rods materially reduce bearing loads. Use of two-inch crank pins permit the withdrawal of the rods and pistons from above without the necessity of angle-split connecting rod bearings. Removable steel backed babbitt lined bearings are used.

The light low expansion aluminum alloy pistons employ the T-slot principle and the anodized finish which has proved so successful in Cadillacs for several years.

Each piston has two compression rings and one oil ring. Because of the extremely low piston travel of the Sixteen engine, wear is reduced many times, hence more than one oil ring is unnecessary.

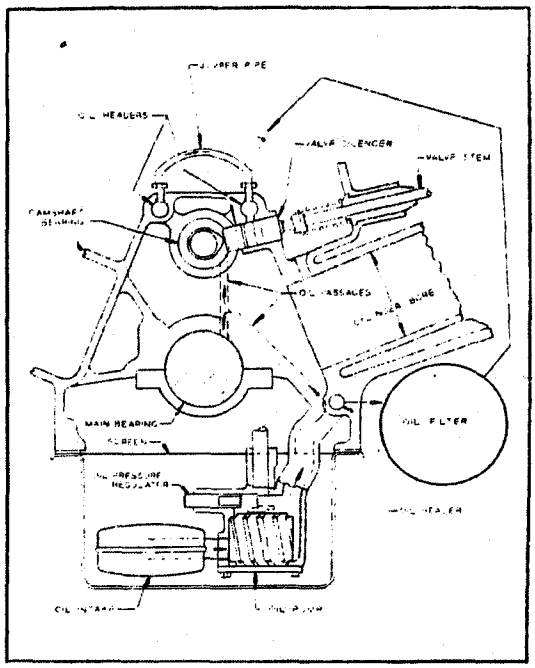
Valve Gear

The camshaft, which is supported upon five bearings, is mounted in the center of the V directly above the crankshaft, and is driven by a silent chain at the front of the engine. The cams operate mushroom type tappets which also embody hydraulic valve silencers of the same type used in the Cadillac V-8's. The tappets in turn operate the valves which have single springs. High speed operation without valve clatter is assured by the light weight valves. The complete mechanism, except the camshaft, is enclosed by two removable valve chamber covers placed across the top of the engine V alley.

LUBRICATION SYSTEM

Engine lubrication follows the Cadillac practice of positively forcing oil to all points, many of which in other engines are oil starved because of reliance upon crankcase oil mist.

Oil is drawn from the pan by a float type intake which stays on the surface of the oil, thus assuring a clean supply. From the intake, oil passes to the helical gear pump which contains a by-pass type of piston oil pressure regulator valve within its housing and is located at the oil level at the rear of the engine. The pump is driven by an upwardly extending vertical shaft having a gear at its top meshing with a cross-drive gear integral with the camshaft.



Sixteen Engine Lubrication

From the oil pump oil passes to a longitudinal header within the crankcase and running its full length. Drilled passages connecting with the header and passing through each of the engine bulkheads supply the main bearings from which passages in the crankshaft lead lubricant to the connecting rod bearings. The camshaft bearings are lubricated by passages which connect

with the previously mentioned main bearing supply passages. The oil pump driveshaft bearing, the two distributor driveshafts and their eccentrics for driving the two fuel pumps are positively lubricated by additional passages connecting with the main bearing supplies. The timing chain and sprocket are lubricated by oil which has passed through the front camshaft bearing; oil from the front camshaft bearing collects in a cavity within the camshaft sprocket from which centrifugal force throws it through a number of radially drilled holes, lubricating the chain.

From the main oil header in the side of the crankcase a pipe leads the oil to the oil filter, thence to two longitudinal headers on either side of the camshaft. Oil from each of these headers passes to the hydraulic valve silencers, lubricating them and providing the pressure necessary for the automatic valve lash adjusting action.

The oil filler is in the center of the front valve chamber cover just behind the generator, and thus is accessible from either side of the engine. A float oil level indicator in the rear of the V gives a continuous reading of the oil quantity. The oil pan capacity is eleven quarts.

Crankcase Ventilation

The Sixteen employs an engine suction type of crankcase ventilation system which has proved itself to be the most efficient ventilating system yet designed.

There is a filter-protected air inlet through the oil filler cap in the center of the front valve chamber cover. This inlet pipe passes downward through the valve chamber and connects with the crankcase. The pipe is sealed at the crankcase so that all air passes into the crankcase.

Two large pipes connect each of the two air cleaners with the front and rear valve chambers respectively. A

conical spring at the bottom of each pipe prevents exhaust gases from being blown into the crankcase.

A third pipe leads from the crankcase through the rear valve chamber and up through the valve chamber cover. Above the cover this pipe connects with the vacuum line leading from the vacuum pump to the intake manifold.

The ventilating system operates in two distinct manners. At low speeds or part throttle operation, air enters the crankcase through a number of holes from three points, through both of the two pipes between the air cleaners and valve chamber covers and through the filter protected oil filler pipe. After the ventilating air has mixed with the crankcase oil mist, absorbing water and fuel vapors, a substantial vacuum draws it out through the intake manifold.

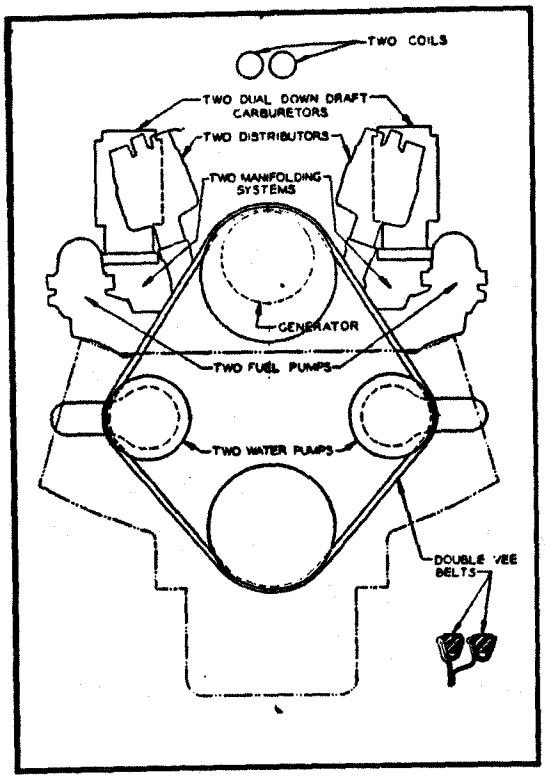
At high speeds or with throttle open, intake vacuum decreases but there is a rapid rush of air through the carburetor air cleaners. This creates a suction in the two pipes connecting them to the valve covers. Air enters the oil filler as before, passes directly to the crankcase, but the outward flow is reversed, the air and impurities going into the valve compartments. The air is then drawn upward into the air cleaners.

The system is simple and reliable in operation and insures an adequate ventilation of the crankcase under all conditions that is not equalled by any other method.

FUEL SYSTEM

From the 26.5 gallon tank fuel is drawn forward through a single pipe placed in a cool position on the outside of the right hand frame sidebar. Near the front of the frame this pipe branches, one lead passing to the right hand fuel pump and one crossing in front of the front

frame crossmember to the left hand pump. This arrangement assures a cool gasoline feed to both pumps thus reducing vapor lock tendencies. The two fuel



Dual Engine Accessories

pumps have integral filters and are of the link driven flexible diaphragm type; the links engage push rods operated in turn by eccentrics on the distributor driveshafts. From the right hand fuel pump a pipe leads to the right hand dual downdraft carburetor while the left hand pump similarly supplies fuel to the left hand carburetor. The two lines are interconnected, however, so either pump may supply both carburetors.

There are two heavy duty oil bath air cleaners of cylindrical shape, each mounted directly above its corresponding carburetor. Dual downdraft carburetors have $1\frac{1}{8}$ inch throats and climatic control. From each of the two carburetors the fuel mixture passes downward to an exhaust heated division chamber thence to the four legs of each of the dual cast iron intake manifolds, which are designed so that no two successively firing

cylinders of a bank draw from the same manifold leg. All intake ports are siamesed. The exhaust ports are single, the two center ports of each cylinder block connecting directly to that portion of the exhaust manifold which heats the intake manifold division chamber. The two exhaust manifolds discharge into a cross pipe placed just behind the carburetors. This pipe conducts the exhaust to the left side of the engine from which the exhaust system leads it downward and to the rear.

Exhaust System

The exhaust pipe leads backward along the left side of the chassis to a large muffler mounted transversely behind the gasoline tank. To keep heat away from the body interiors, the pipe is outside the frame side bar for most of its length.

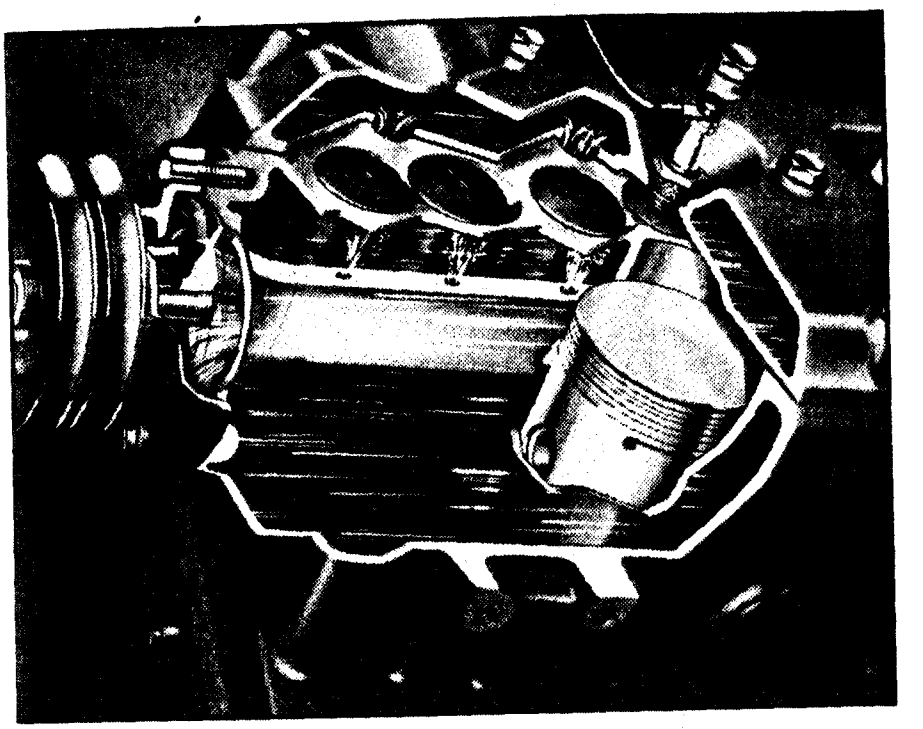
COOLING SYSTEM

The new Sixteen engine has two independent water circulating systems, there being one for each bank of eight cylinders.

The illustration on page 218 shows the general arrangement of the water pump and fan belt drive. Two parallel V-belts driven by double pulleys at the front end of the crankshaft encircle the two water pump pulleys at the sides of the engine and the fan drive pulleys at the top. The double belts obviously have materially longer life than a single belt.

Each of two outlets at the base of the radiator is connected to one of two centrifugal water pumps mounted in the front ends of both cylinder blocks. The pumps employ permanent carbon block water pump packing. The pump impellers are held on very hard steel shafts by a press fit. With dual belt drive the former shear pin construction is unnecessary.

From each pump water is forced directly backward through tubes extending the full length of each cylinder block. These tubes direct sprays of water forcibly



Positively Cooled Valves and Full Length Water Jackets

around the valves, and also assure correct distribution of the water throughout the entire lengths of the blocks. Full length water jackets assure uniformity of cylinder wall temperature and reduce oil temperature. These long water jackets also increase the quantity of cooling water which increases heat absorbing capacity. From the cylinder blocks the cooling water passes upward into the cylinder heads, and then forward to the outlets at the front of the engine.

Radiator cooling efficiency has been greatly improved. A copper cellular core is used which has wide passages to prevent clogging and is reduced in thickness from 4 to $3\frac{1}{2}$ inches. This reduces air restriction and thus reduces underhood temperatures. Width has also been increased $\frac{11}{16}$ of an inch, increasing area more than three per cent. This improves cooling efficiency since

more of the radiator is covered by the fan. The radiator top tank is larger, increasing reserve cooling capacity. The new radiator grille also has greater opening area and provides better air distribution.

A new seven bladed fan having symmetrically spaced blades delivers exceptionally large volumes of air, yet is unusually quiet.

Thermostatically operated radiator shutters are provided. The thermostat is now in the rear of the radiator top tank which improves service accessibility and protects the thermostat from cold air blasts which might otherwise cause irregular operation. The bayonet type of pressure valve filler cap is used.

ELECTRICAL SYSTEM

A large 21 plate 164 ampere hour battery is used in the Sixteen. It is mounted under the right side of the front seat.

The battery is maintained at full capacity by an improved Peak Load Generator. Both voltage regulation and current control features are provided which insure a constant rate of proper charge throughout the car's speed range, depending upon battery condition and the number of electrical accessories in use. Generator charging ability at low speeds has been increased.

An unusual feature of the new Sixteen generator is its drive gear. Both fan and generator are driven by the same dual belts, but a friction generator drive is provided which lifts the generator speed above the fan speed. This is accomplished by a rubber driving ring against which is pressed the generator driving wheel. The fan mounting bracket is adjustable, permitting it to be raised or lowered for belt tension. The generator front cover is secured to the fan mounting bracket so

the generator and its driving wheel may be raised or lowered to adjust the frictional contact between the generator driving wheel and the rubber ring.

The solenoid operated starter is of the six pole type and is operated directly instead of through reduction gearing as in the past.

Ignition System

The Sixteen electrical system is most unusual in that two distributors are used. The left distributor makes and breaks the current for the two iron clad coils and both cylinder blocks and distributes high tension current to the left hand block. The right hand unit distributes high tension current for the right block only. As viewed from above, the left hand distributor rotates clockwise while the right hand distributor rotates counter-clockwise. The two coils are mounted above the distributors on the radiator thermostat housing. The coils are held together by a die-cast base into which the coil lock passes. High tension ignition wiring from the distributors to the 14 mm. spark plugs is concealed and protected by metal conduits.

Circuit Breaker

The entire electrical system is protected against short circuits by a thermostatic circuit breaker. This breaker operates from heat generated by any current overload. After breaking the circuit and as soon as the system cools to normal temperature, it closes again, making the electrical system complete.

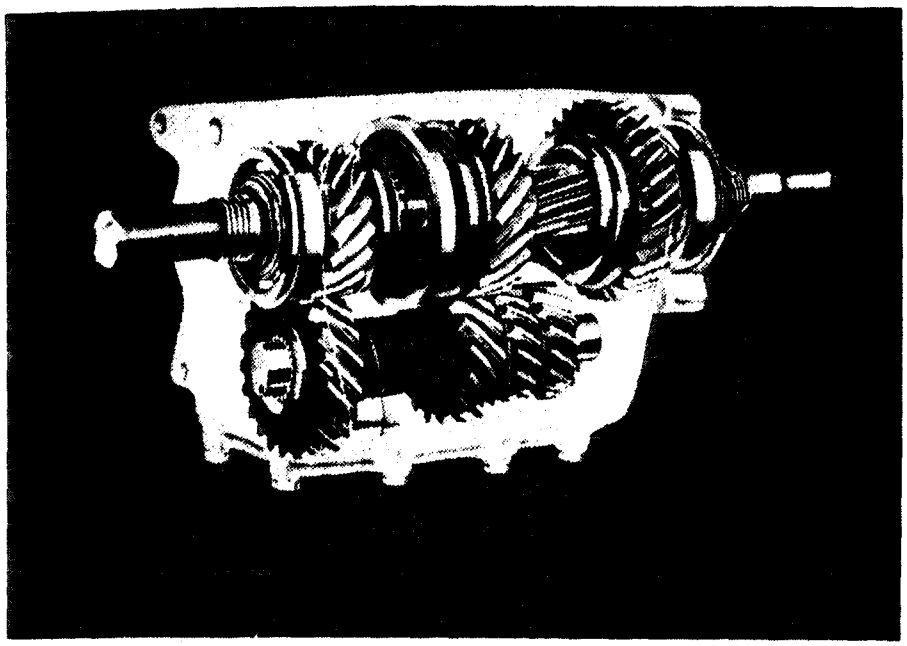
CLUTCH

The clutch is of 11½ inch single dry plate semi-centrifugal design. It is larger in size and capacity, but basically similar in design to the Cadillac V-8

clutch. No spring dampeners are required, however, because of the smooth flow of power from the sixteen cylinder engine.

TRANSMISSION

There is one transmission described in the V-8 Engine Section for all models. This new transmission has been



New, More Durable Transmission

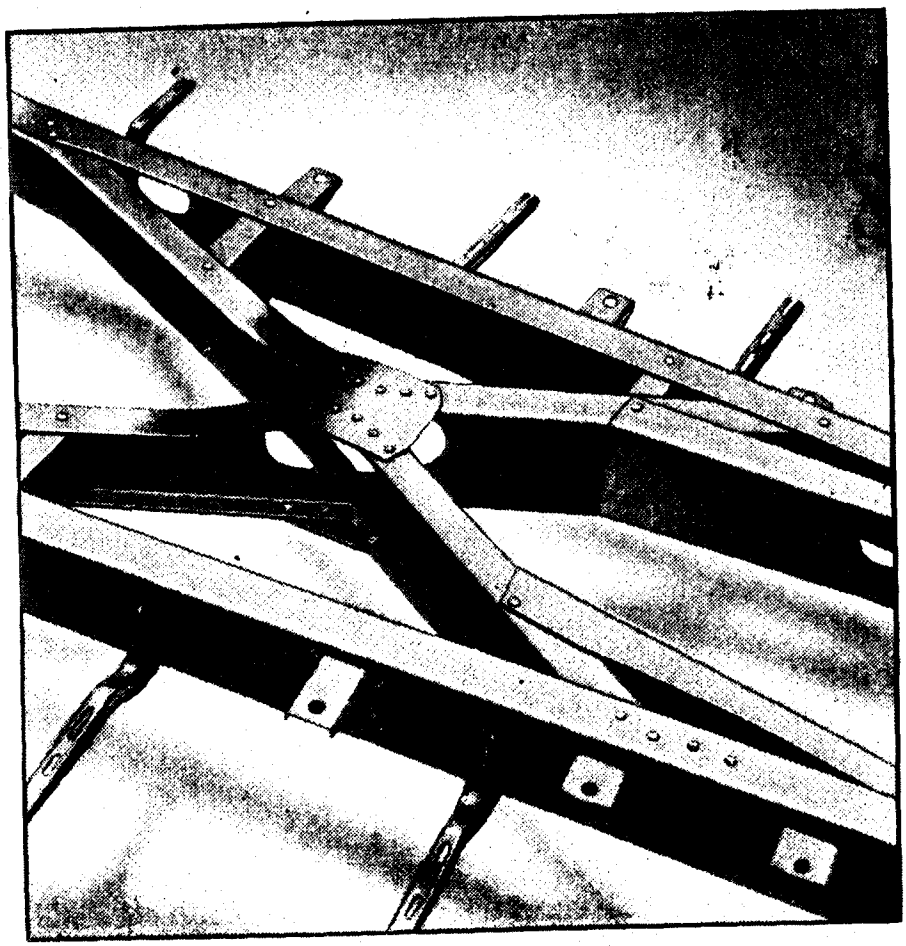
designed and built specifically to meet the Sixteen requirements of durability, dependability and ease of operation.

Syncromatic Shift

Syncromatic Shift, which eliminates all obstructions in the front compartment and is operated in the same manual manner as before, is employed on the Sixteen.

SIXTEEN CHASSIS

To complement its sensational new 135° sixteen cylinder engine, the Sixteen chassis has been entirely redesigned. Wheelbase has been reduced to 141 inches which is an important factor in according the Sixteen with the greatest maneuverability ever accomplished in such a powerful motor car. In spite of the shorter wheelbase every interior body dimension is greater than the previous V-16. Hypoid rear axles and lower frames permit lower floors for greater interior headroom and greater door heights.



Rigid Frame Bracing and Deep Center Junction

Frame

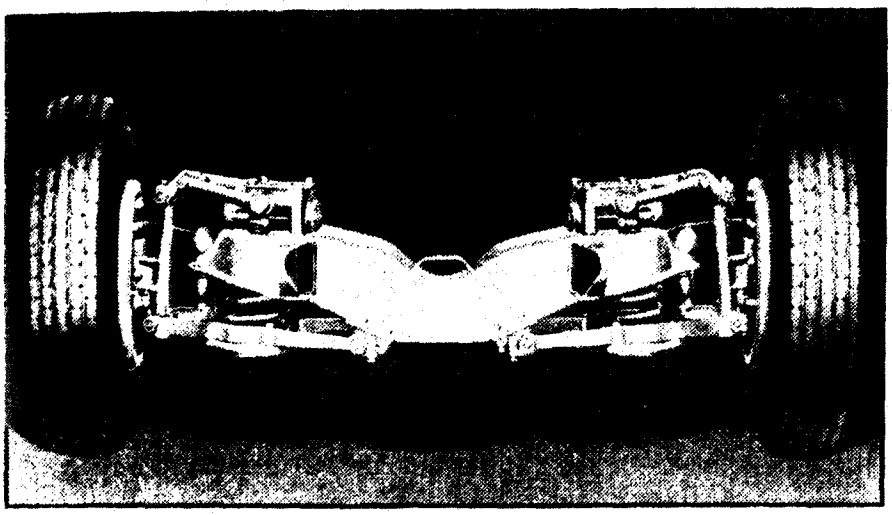
The frame is lower and has been completely redesigned which increases its stiffness by one hundred per cent.

This has been accomplished by using straight sidebars, which space the rear springs more widely and by a new sidebar reinforcement at the front. This latter reinforcement extends forward from each of the X-members and makes a box section with the sidebar and is carried back much farther than before, thus strengthening the junction of the X-members and frame sidebars. An exceedingly great depth of $9\frac{13}{16}$ inches is realized at the central junction of the X-members, an additional factor in increased frame rigidity. Heavy steel plates reinforce the junction at the top and bottom.

The Cadillac front end construction with sidebars extending through the massive cross member at the front of the frame is continued.

Knee Action and Spring Suspension

Cadillac-designed Knee Action, which assures a flat high speed ride and soft boulevard ride and constantly accurate steering geometry, is used on the Sixteen. Identical as to principle with the smaller Cadillacs, structural parts are heavier to meet the necessarily greater strength requirement.



Sixteen Knee Action

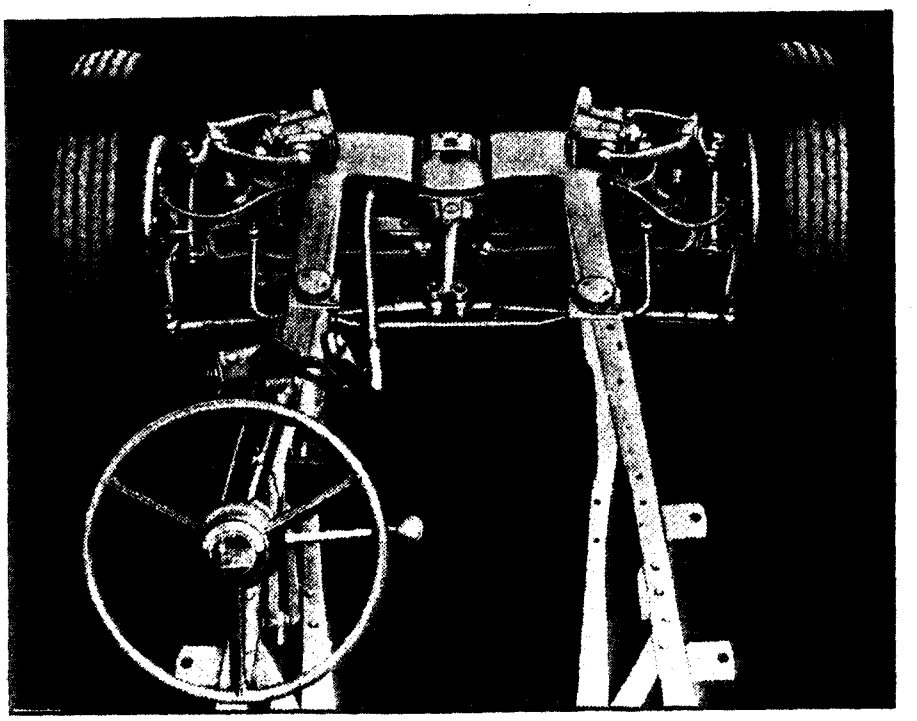
Rear springs are semi-elliptic in design and have been moved $4\frac{1}{4}$ inches closer to the wheels. This im-

proves roadability by reducing roll. Another noteworthy improvement is the use of wax liners between the spring leaves. These liners do not require lubricant, yet prevent squeaks. With liners it has been found that spring covers are detrimental because they act as dirt collectors, consequently no covers are used.

Two-piece rubber bushings are used in the front of the rear spring and in the upper shackle bearing. The lower shackle bearing is threaded. The shackles are of the sturdy double bar design. This method of mounting the springs at each end gives increased riding comfort, quiet operation and eliminates lubrication problems.

Center Point Steering

That easy and quick turning ability in confined areas and steering accuracy for safe handling at high speeds is obtainable in as large and heavy a car as the Sixteen



Sixteen Center Point Steering

is a true engineering accomplishment. This is due to Cadillac-designed Center Point Steering in conjunction with Knee Action.

In cars using the conventional front axle there is an inherent tendency toward wander and pulling from side to side, particularly when braking. This is because the axle rolls forward under braking load. When striking a bump the conventional axle never moves in quite the precise curve to give correct steering geometry. This causes steering wheel whip.

In the Sixteen geometrical relationship of the various parts of the steering system is accurately controlled at all speeds. Each front wheel is directly connected to the frame by rigid forged forked arms which accurately control wheel motion. The upper forked arm is shorter than the lower by a sufficient amount to maintain constant tread regardless of spring deflection. Constant tread prevents sidewise scrubbing of the tire upon the road's surface.

The two steering cross rods are of the same length and parallel to the lower forked arms which avoids errors in steering geometry. They are joined and controlled at the center by a longitudinal drag link. A roller shaft extends from the drag link through the frame sidebar and is straddle mounted on the steering gear housing. The steering gear is of the sturdy worm and double roller design. Two extremely strong universal joints which contribute to handling ease are used in the steering column.

Shock Absorbers

Cadillac's exclusive end-to-end discharge type shock absorbers with dash pot inertia controls at the rear are used on the Sixteen. This is the finest and most costly shock absorber equipment available and provides a degree of luxurious comfort over any kind of road that has never been equalled.

Three point manual adjustment is provided to give a soft, medium, or firm ride in accordance with the owner's preference.

The front shock absorbers are attached to the upper forked arms of the Knee Action assembly and control compression and rebound action of the helical coil springs.

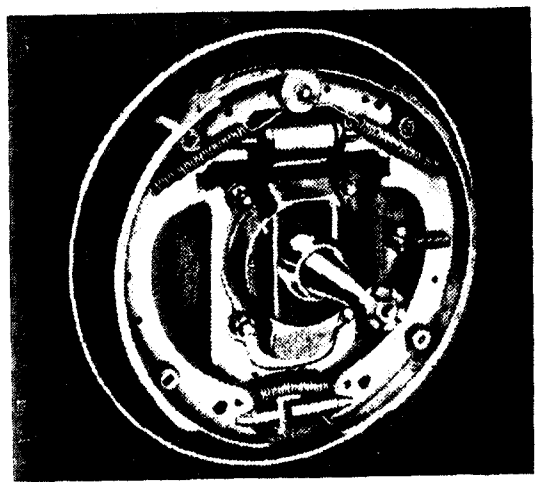
Double Ride Stabilizers

Another important chassis refinement on the new Sixteen is the adoption of a cross link rear stabilizer. This stabilizer is effective in reducing body roll and also provides rear axle control reducing body shake on choppy road surfaces.

The front stabilizer is of rigid torsion shaft construction and is mounted behind the Knee Action arms. This stabilizer insures handling stability at high speeds on curves or steeply crowned roads.

Hydraulic Brakes

Self-energizing hydraulic brakes are used on the Sixteen because these give the finest combination of positive



Sixteen Hydraulic Brake

braking action, free from the need of frequent adjustment, longer brake lining life and ease of operation. Moulded linings with a total of 258 square inches area

are used for durability. Drums are of expensive composite design and are ribbed for cooling.

Braking ratio is 57% front and 43% rear.

Hotchkiss Drive

The Hotchkiss type of drive is particularly suited to Sixteen chassis requirements because of its long wheelbase and weight. This type of drive contributes to riding qualities by reducing unsprung weight and by cushioning starting and stopping strains from the rear axle through the rear springs before they reach the frame. Rear axle action over rough roads is restrained because the wheels are allowed to follow road irregularities freely.

The propeller shaft is four inches shorter which improves high speed smoothness. Refinements in design of the universal joint flanges serve to maintain the precision balance of the propeller shaft after assembly.

There are two needle bearing universal joints which are permanently packed with lubricant.

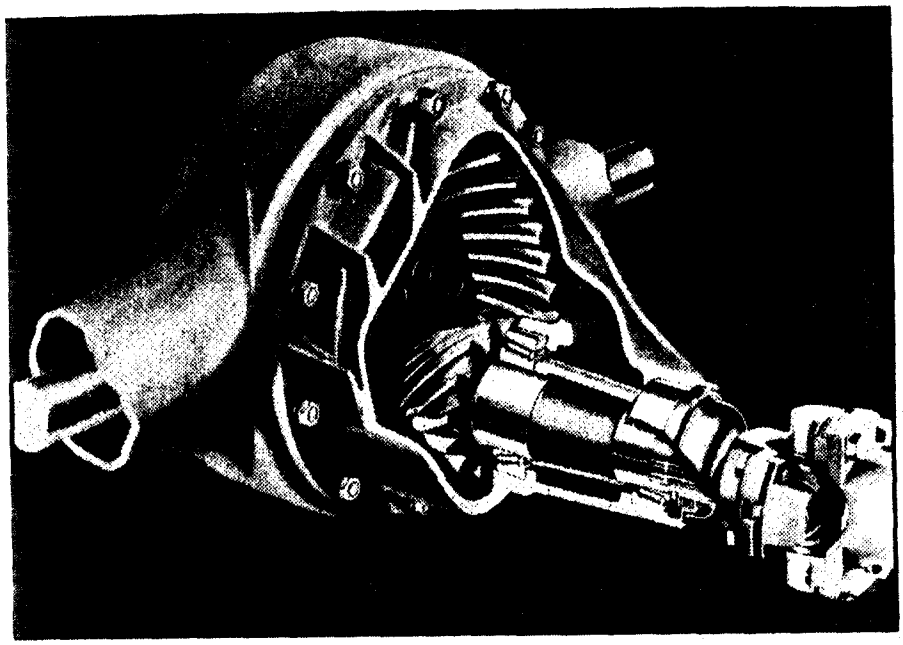
Hypoid Rear Axle and Differential

A new hypoid rear axle has been designed for the Sixteen which incorporates the most advanced engineering with structural durability features exclusive to Cadillac precision manufacture. The basic principles follow those which proved so satisfactory in the previous LaSalle and Cadillac 60 with one exception. Instead of a shim adjustment for the differential bearings, the sleeves which hold these bearings in position are threaded so that adjustment is effected by rotating the sleeve.

The new semi-floating axle is unusually strong for its weight. A cylindrical differential housing which encircles tapered roller differential bearings is carried within a heavily ribbed carrier. The axle cover is

welded into position to increase housing rigidity. Bronze thrust bearings are used between the two differential pinions and the housing. The ring gear diameter is eleven inches.

All gears are carefully ground, finished by Cadillac's famous lapping process, and matched individually by hand into sets. Each axle housing is manufactured for its own particular set of gears.



New, Unusually Strong Hypoid Rear Axle

The phenomenal performance of the Sixteen is partially due to a carefully selected 4.31 to 1 rear axle ratio. This is a large reduction from the previous V-16, made possible by decreased weight, and also accounts for the exceptionally low piston travel of the new sixteen cylinder engine.

CADILLAC FLEETWOOD BUSINESS CARS

Cadillac has always received preference in the selection of large fine cars having a wealth of interior roominess and comfort. For 1938 this demand will be even greater, for Cadillac has designed two new Fleetwood types for these people—a Fleetwood Seven Passenger Touring Sedan and a Fleetwood Seven Passenger Touring Limousine. These fine new cars will attract customers desiring large seven passenger sedans below the price of the regular Fleetwoods.

Having a larger wheelbase of 141 inches the new Business Cars employ the redesigned Fleetwood chassis and 140 H.P. V-8 engine. Cadillac's new Syncro-Flex Flywheel and voltage regulated Peak Load Generator are used.

Exterior appearance and styling reflects the dignity so impressive in the 1938 Fleetwoods—styling distinctive to these fine cars alone.

A notable and exclusive feature within these new Business Cars is the novel Fleetwood auxiliary seat construction which provides legroom and foot space, and comfort in double throw-back seats never realized in seven passenger models before.

Six upholstery options are available in tan or gray Bedford Cords, ribbed Broadcloths and plain Broadcloths. Additional interior features are: ebony finished garnish mouldings, side arm rests, back window curtain, carpet covered foot rail and assist straps.

A folder will be available containing detailed descriptions and specifications on these new Fleetwood Business Cars.

SERVICE AS A SALES AID

The high standards of Authorized Cadillac-LaSalle Service provide an effective sales story for car salesmen. Authorized Service also contributes definite sales assistance by fostering good will and by maintaining customer interest in Cadillac between new car purchases.

The sales story as regards Cadillac-LaSalle service includes the following important points that should be thoroughly understood by every Cadillac salesman:

A WRITTEN SERVICE POLICY—The responsibilities of both the owner and the service station are clearly outlined on a Certificate which is presented to the owner when he takes delivery of a new Cadillac or LaSalle.

FREE INSPECTIONS.

TOURIST PRIVILEGES—The owner is furnished with an identification card which entitles him to warranty service at any Authorized Cadillac distributor or dealer anywhere in the United States or Canada.

LIBERAL WARRANTY INTERPRETATION.

UNIFORM PRICES ON PARTS—The List Prices published in the Parts Book hold good anywhere in the United States.

FAIR MAINTENANCE CHARGES—The Standard Service Price Schedule giving flat rate charges for repairs is open to inspection by owners at any Authorized Service Station.

The text of the Service Policy Certificate which is given to the owner is reproduced on page 235. It may be summed up in brief, as a sincere attempt by the Cadillac Motor Car Division to give its owners the same high standards of craftsmanship in service that are upheld in the manufacture of our cars.

This is made possible by Cadillac's trained service men whose years of experience with Cadillac cars average approximately eleven years per man. These men are kept up-to-date by continuous Factory training. In addition, more than 3000 Cadillac service men are enrolled in the Cadillac Certified Craftsman's League, which through a series of monthly examinations, is engaged in raising the standards of craftsmanship still higher.

The most valuable contribution of Authorized Cadillac-LaSalle service to the salesman is, however, in maintaining the owner's good will and interest in Cadillac. Authorized Service keeps the cars in satisfactory operating condition with a minimum of expense and inconvenience. In addition, the Lubrication Agreement, Service Contract, and the Owner Follow-Up System provide a means of maintaining regular contact with each owner.

LUBRICATION AGREEMENT

The value of the Lubrication Agreement to Cadillac distributors and dealers is no longer questioned. This single service has brought over a million calls to distributors' and dealers' service stations since it was introduced by Cadillac in 1931.

The Cadillac-LaSalle Lubrication Agreement is based on the idea of *mutal advantage to both the car owner and the service station*—intended to assure owner satisfaction through regular, expert service at a saving to the owner.

By purchasing his lubrication work in advance, the owner receives Cadillac lubrication and inspection service at 1000-mile intervals for a period of 12,000 miles at a price reduction of more than 25 per cent.

The Lubrication Agreement includes all lubrication operations on a schedule recommended by Cadillac engineers and all lubricants except the engine oil which it is the owner's responsibility to add between the regular 1000-mile inspections. It also includes two changes of rear axle and transmission lubricant and six changes of engine oil in addition to lubrication of all chassis points.

Although the sale of Lubrication Agreements is primarily a service department activity, the benefits that a salesman may secure from having his customers as Lubrication Agreement holders will justify considerable effort on his part to sell one of these agreements to each new car purchaser.

The prices of the Lubrication Agreement are as follows:

	Price
LaSalle 38-50	$31.00
Cadillac 38-60	31.00
Cadillac 38-65	35.00
Cadillac 38-75	35.00
Cadillac 38-90	45.00

Repeat sale business can be secured more easily if owners return regularly to the dealer's service station. Periodic contacts secured through the sale of Lubrication Agreements assure satisfactory operation of the car, correction of any misunderstanding that might occur, and advance information on the owner's plans for future purchases.

NEW SERVICE CONTRACT

The Cadillac-LaSalle Service Contract offers new owners economical mechanical maintenance on Cadillac-LaSalle cars. The Service Contract covers all necessary maintenance work—on both chassis and body, including material and labor—for the first 12,000 miles or first year, as low as $6.25 per month including lubrication.

The service is rendered at the regular 1,000-mile intervals when the car is brought in for lubrication and includes everything except tires, anti-freeze, accessory repairs, accident work and appearance service.

Through the medium of the Service Contract the salesman can tell the owner exactly how much it will cost him to operate his new Cadillac or LaSalle for the first year or 12,000 miles for both lubrication and mechanical repairs.

The purchaser of a Service Contract must first purchase a Lubrication Agreement. When an owner's car is covered by both he is assured of trouble-free operation of his car for as little as 5/8 of a cent per mile.

One of the most powerful talking points that a salesman can have is—economy of up-keep. With these two plans, Cadillac salesmen have plenty of ammunition to blast asunder any myths as to high cost of maintenance that may exist in the minds of their prospects.

Remember to explain that the purchasers of either of these service plans may use them anywhere in the United States where the Cadillac Authorized Service Sign is displayed. The owner does not buy from any one Cadillac distributor or dealer—rather he purchases in advance, the privilege of having his service work done by trained Cadillac service men anywhere in the country.

The prices of the Service Contract and Lubrication Agreement are totaled below:

	Lubrication Agreement*	First Year Service Contract	Total	Average Cost Per Month
LaSalle 38-50	$32.75	$42.25	$75.00	$ 6.25
Cadillac 38-60	32.75	47.25	80.00	6.67
Cadillac 38-65	36.75	50.75	87.50	7.46
Cadillac 38-75	36.75	58.25	95.00	7.92
Cadillac 38-90	48.00	82.00	130.00	10.83

*Price of Lubrication Agreement includes oil change at 1000 miles when sold with Service Contract.

The salesman who sells the Service Contract to his customers is assured of three things that mean much to his future welfare:

1. Most efficient and economical operation of the owner's Cadillac or LaSalle.
2. Maintained contact with the owner.
3. Thorough goodwill of the owner for himself, his distributor, dealer, and Cadillac-LaSalle.

REVISED 12-15-37

CADILLAC-LaSALLE

Owner Service Policy

DELIVERY: The Dealer will see that the car is properly prepared before delivery to the owner, in accordance with Standard Factory instructions.

PARTS AND LABOR: For ninety days after delivery, provided the car has not been driven to exceed 4,000 miles, parts (including all original equipment except tires) which have proved defective in either material or workmanship will be replaced or repaired by any Cadillac-LaSalle dealer in the United States or Canada without any charge to the owner for the material or labor.

ADJUSTMENTS: For the first ninety days after delivery, provided the car has not been driven to exceed 4,000 miles, the owner will receive three inspections and adjustments; the first between 500 and 1,000 miles, second between 1,000 and 2,000 miles, and the third between 2,000 and 4,000 miles. These to be given without charge to the owner, provided the work is not made necessary by misuse, negligence or accidents.

INSPECTIONS: Throughout the life of the car the owner is entitled to have his car tested and inspected without charge every 30 days or 1,000 miles by any authorized Cadillac-LaSalle Service Station, provided such inspection or testing requires no dismantling of parts.

SERVICE IDENTIFICATION CARD: At the time of delivery the owner will be provided with a service Identification Card which will introduce him to any Authorized Cadillac-LaSalle Station and entitle him to receive service in accordance with this policy. This card should be carried by the owner at all times.

TOURIST PRIVILEGES: When touring, the owner is entitled, upon presentation of his identification card, to all of the benefits of this policy at any Authorized Cadillac-LaSalle Service Station in the United States or Canada.

CHANGE OF RESIDENCE: In case the owner changes his residence from one location to another before the warranty period has expired, the Authorized Cadillac-LaSalle Service Station serving the locality into which the owner moves will, upon presentation of the Identification Card, render any no-charge service to which the owner may be entitled as outlined in paragraphs two and three.

REGULAR MAINTENANCE PARTS AND SERVICE CHARGES: For the benefit of the owner, the Cadillac Motor Car Division of the General Motors Sales Corporation has provided established parts and labor prices on regular maintenance work. Genuine Cadillac-LaSalle parts are sold only through Authorized Cadillac-LaSalle Service Stations, and can be secured at the published list price anywhere in the United States or Canada, and there are no additional charges for freight, express, handling, or additions of a similar nature.

CADILLAC-LaSALLE

Exclusive Accessories For 1938

	Price
Master Radio	$79.50
Standard Radio	65.00
Fleetwood Radio	95.00
Heater-Defroster (Front Compartment)	26.50
Heater-Defroster (Front and Rear Compartment)	42.50
Spotlight	18.50
Fog Lights (Pair)	17.50
Luggage (Striped Tweed Ducoid)	
Wardrolette	42.50
Aviatrix (Ladies)	32.50
Aviator (Men)	35.00
Wheel Discs, Cadillac and LaSalle (Each)	4.00
Wheel Trim Rings (Each)	1.50
Flexible Steering Wheel	15.00
License Frames (Pair)	5.50
Fleetwood Robe (To Match Car Upholstery)	47.50
Double Alpaca Robe	30.00
Alpaca and Plush Robe	30.00
Sea Breeze Seat Covers (Per Seat)	7.50
Moto-Pack	6.85
Automatic Battery Filler	7.50
Hinge Mirror	4.50
Insect Screens { LaS.	2.25
Insect Screens { Cad.	2.50
Clock (Instrument Panel, LaSalle)	12.50

Cadillac & LaSalle Accessory Groups

LaSalle Series 38-50

GROUP B

Clock
Flexible Wheel
List $27.50

GROUP A D

Clock
Flexible Wheel
License Frames
Wheel Discs
List $49.00

GROUP A R—5

Clock
Flexible Wheel
5—Trim Rings
License Frames
List $40.50

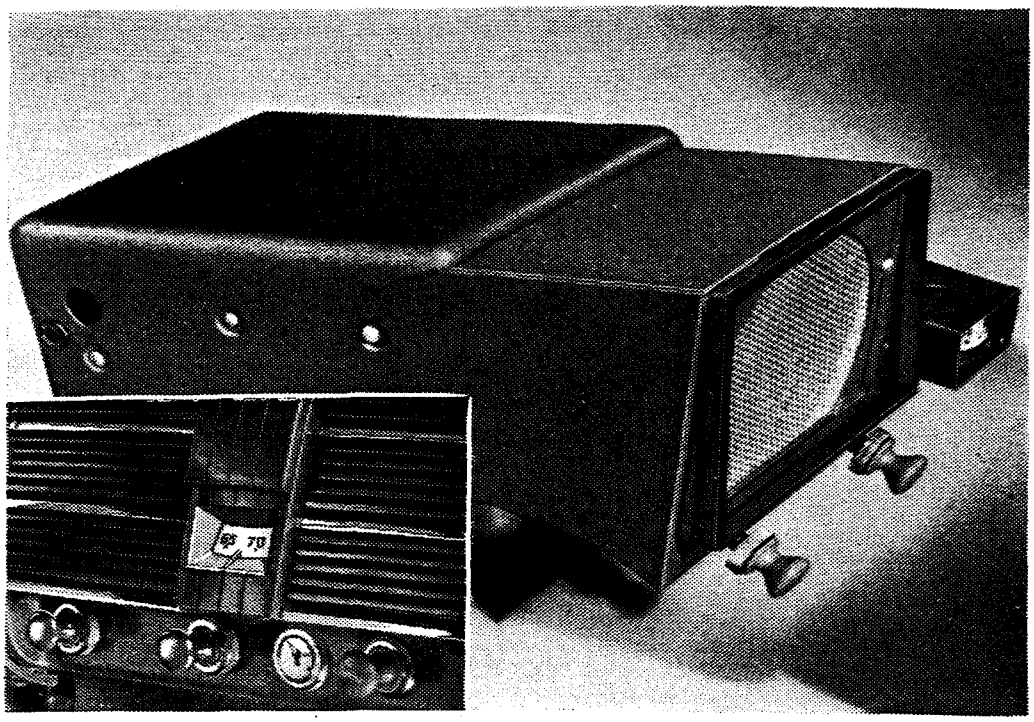
GROUP A R—6

Clock
Flexible Wheel
License Frames
6—Trim Rings
List $42.00

Cadillac Series 38-60, 65, 75

GROUP A

Flexible Wheel
License Frames
Wheel Discs
List $36.50

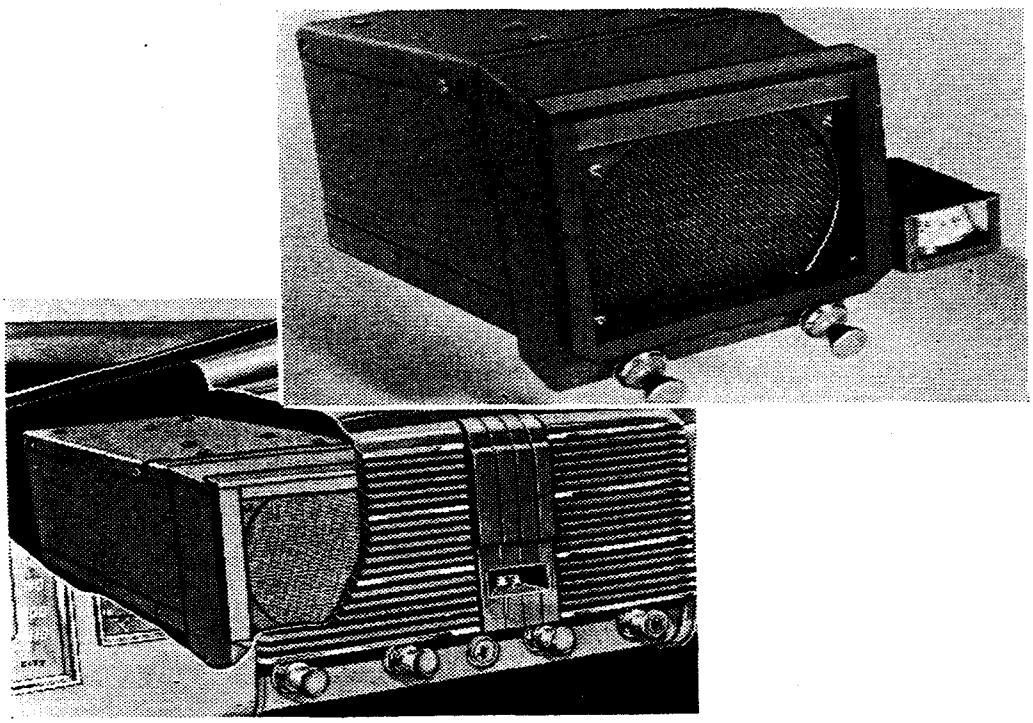


CADILLAC MASTER RADIO

The new Cadillac Master Radio is the finest motor car radio that has ever been produced. It has tremendous volume, making possible exceptionally long range reception, and its tone reproduction is unusually clear and natural with no distortion or blasting.

This outstanding new radio is a compact single unit set which is mounted behind the instrument panel. The speaker fits directly behind the grille in the panel and uses the entire panel as a baffle. The tenite control knobs matching the other controls on the instrument panel are mounted on all cars in production. Dummy shafts are used to hold the knobs in place on cars not equipped with a radio.

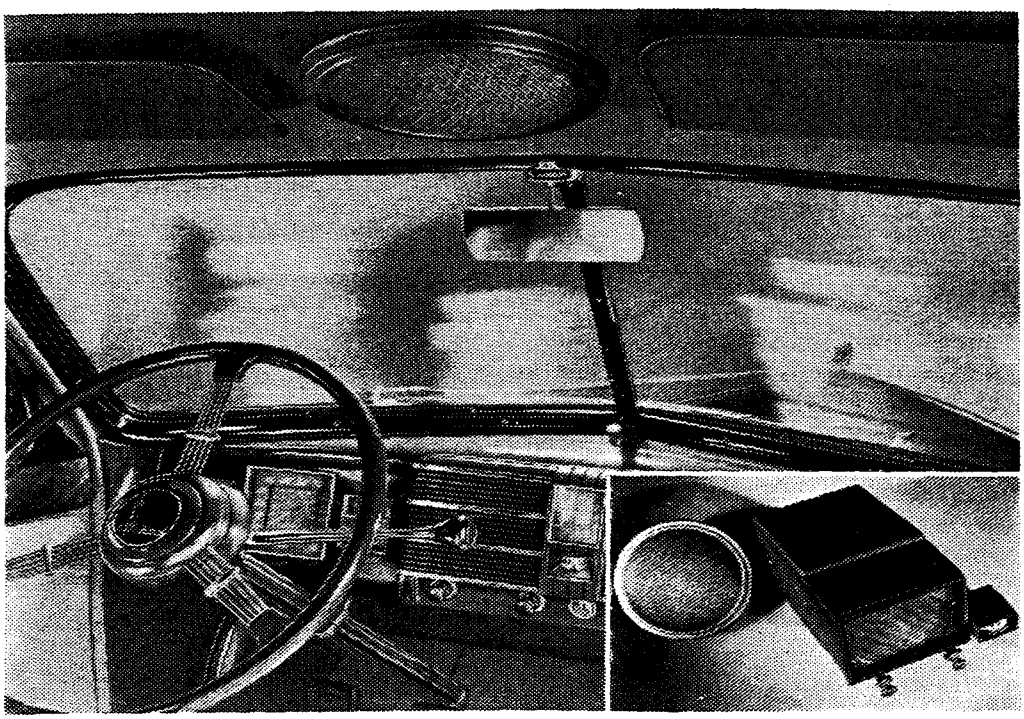
The new Cadillac Master has an output of 14-watts, the greatest yet achieved by any motor car radio. Despite this great output, however, there is no increase in current drain due to the use of a new type, more efficient circuit.



CADILLAC STANDARD RADIO

The 1938 model Cadillac Standard radio is a 5-tube set equipped with a synchronous vibrator and a six-inch permanent magnet speaker which utilizes the instrument panel of the car for a baffle. Like the new Cadillac Master it is a single unit set mounted directly behind the instrument panel.

Circuit improvements make the new Standard remarkably economical in current consumption. It gives brilliant reception and has great station-getting ability.

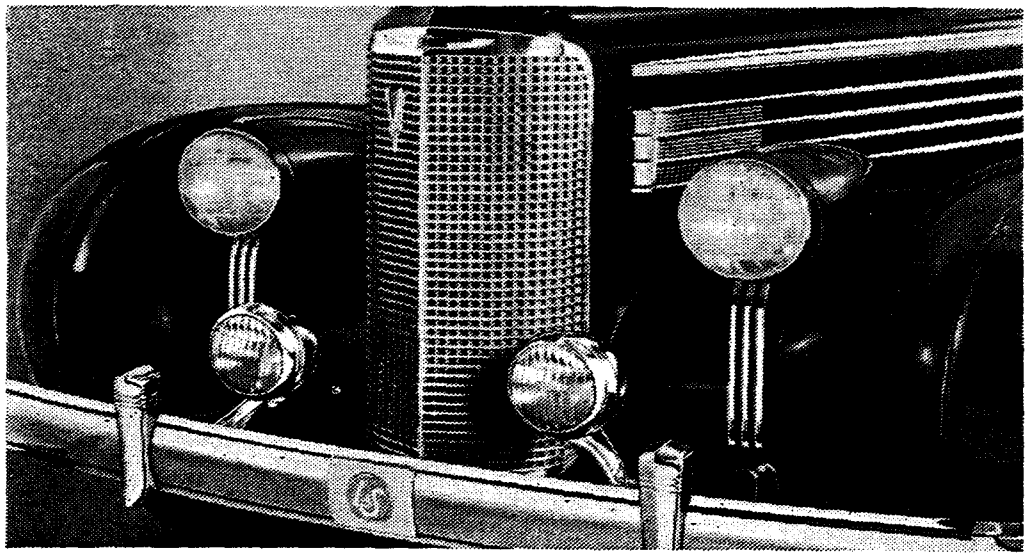


CADILLAC FLEETWOOD RADIO

The new Cadillac-Fleetwood Radio is without exception, the greatest all 'round performer ever offered to motor car buyers. The radio chassis is basically the same as that of the new Cadillac Master, and it is installed in the same manner.

In order to equal the tonal qualities of the finest home radios, however, the Cadillac-Fleetwood Radio is equipped with dual synchronized speakers—one in the instrument panel and the other in the header piece. The use of two speakers, each with its special baffle, gives a quality of tone that is unsurpassed.

The Cadillac-Fleetwood Radio is available for installation on 1938 Cadillac-Fleetwoods and V-16's only. The remaining series Cadillac and LaSalle cars may be equipped with either the Master or Standard Radio.



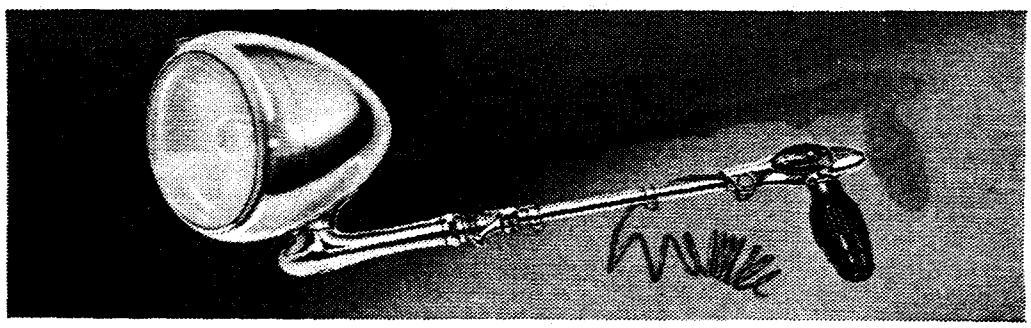
ADVERSE WEATHER LIGHTS

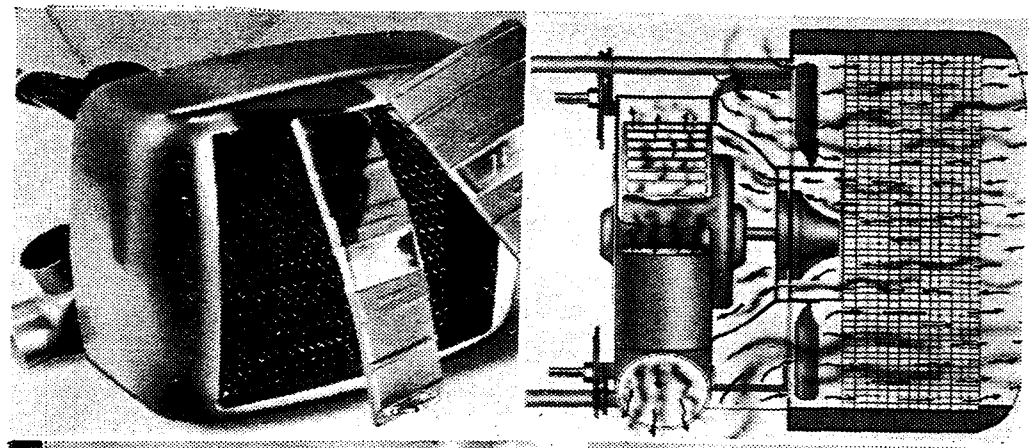
Cadillac Fog Lights are designed to increase the automobile driver's range of visibility under adverse day or night driving conditions. These lights are equipped with special amber-colored prismatic lens which provide maximum penetrating power in fog, mist, rain or snow.

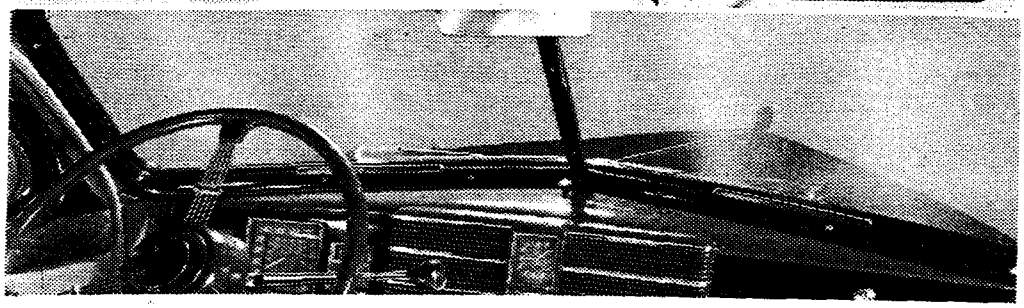
These lights will give from 75 to 125 feet of visibility under conditions where the headlamps are of little use. They are particularly effective in lighting black surfaced highways.

SPOTLIGHT

The new Cadillac Spotlight is a boon to the night driver. Its powerful beam will travel several thousand feet, or more than 10 times the distance required to stop a car traveling at 60 miles per hour. It is finished in chrome and matches the Fog Lights perfectly.



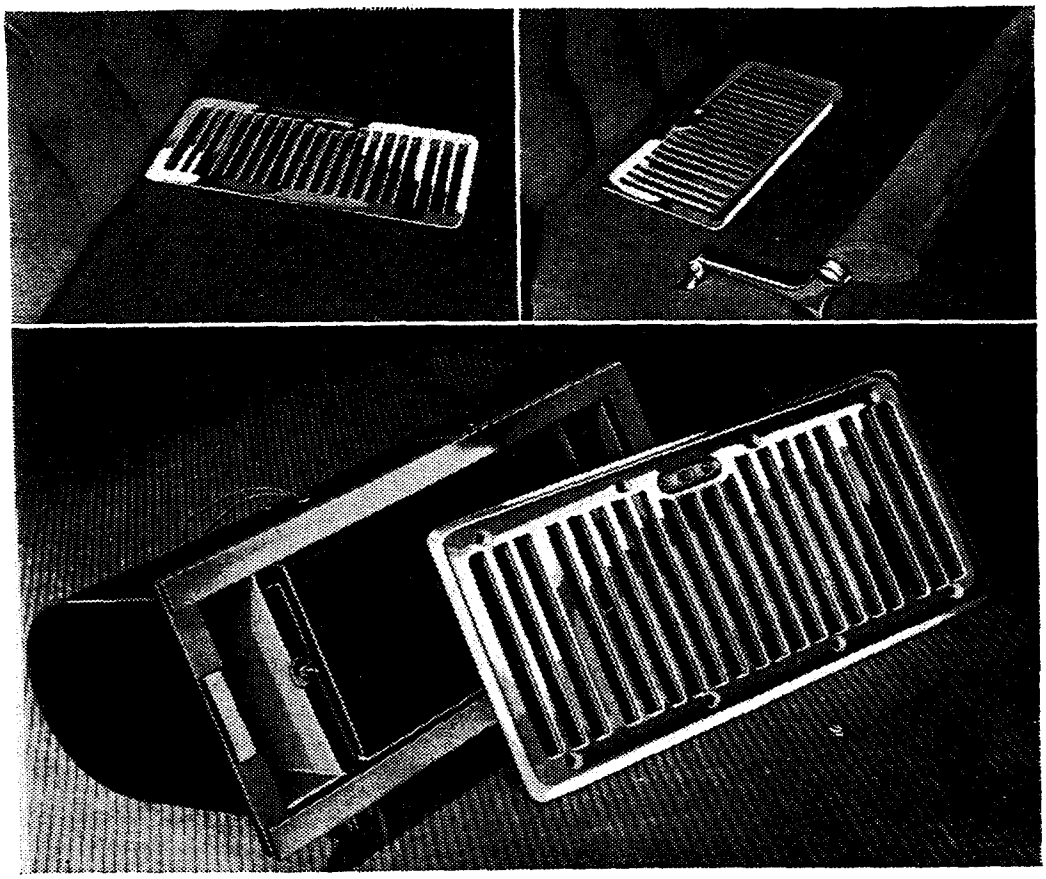




HEATER-DEFROSTER

The new Cadillac Heater-Defroster for 1938 is of the hot water type and has as an integral part of its construction, a built-in defroster. All 1938 series Cadillac and LaSalle cars are designed to have this heater installed. Holes are provided in the dash, the defroster outlets are built into the garnish moulding and the water connections are already tapped.

The advanced design of this new heater enables it to give a 35% increase in heating efficiency over last year's outstanding heater. In addition, the defroster's efficiency has been greatly improved through increased air flow to the windshield.



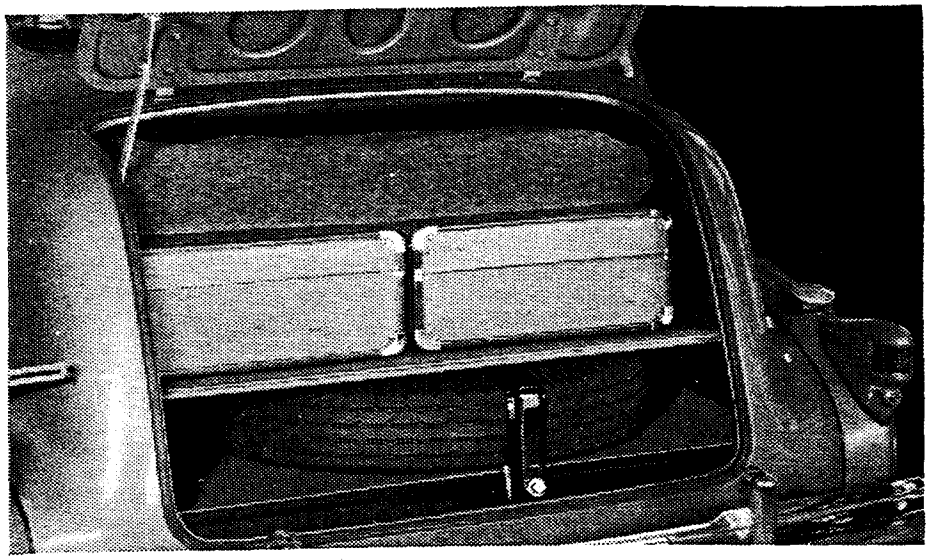
REAR COMPARTMENT HOT WATER HEATER

The new Cadillac Rear Compartment Hot Water Heater is designed primarily for the larger sedans and limousines where it is essential that heat be provided direct to the rear compartment. This new heater must be used in conjunction with the regular hot water heater-defroster that is mounted in the front compartment. It is adaptable to Cadillac Custom V-8, Fleetwood and Sixteen only.

The new heater overcomes all objections to the previous type of rear compartment heaters inasmuch as: the rear register is flush with the floor thus avoiding interference with the passenger's feet, it is silent, and there is no possible danger of exhaust odors reaching passengers.

The rear compartment heater offers motor car owners the last word in comfort. Ample heat in both front and rear compartments, and a clear windshield at all times by virtue of the built-in defroster on the front compartment heater.

REVISED 12-15-37



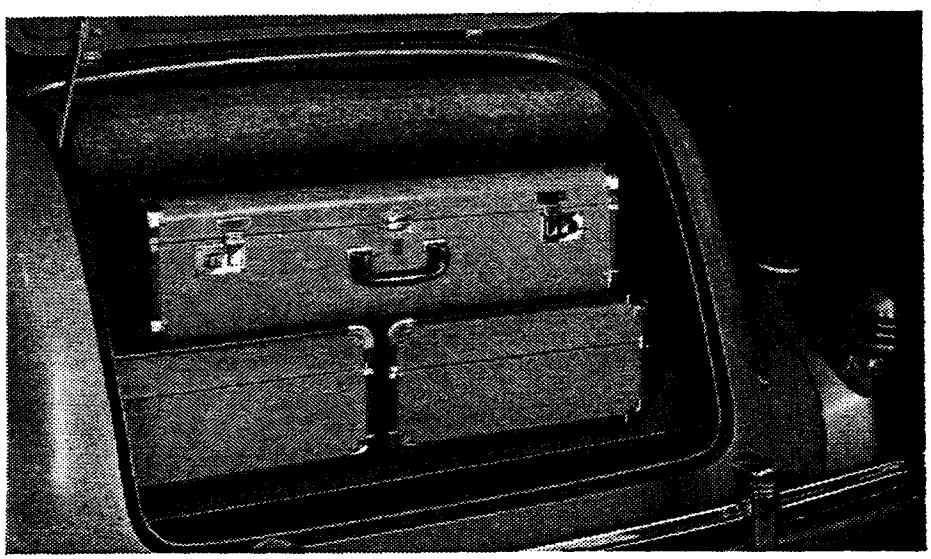
LUGGAGE EQUIPMENT

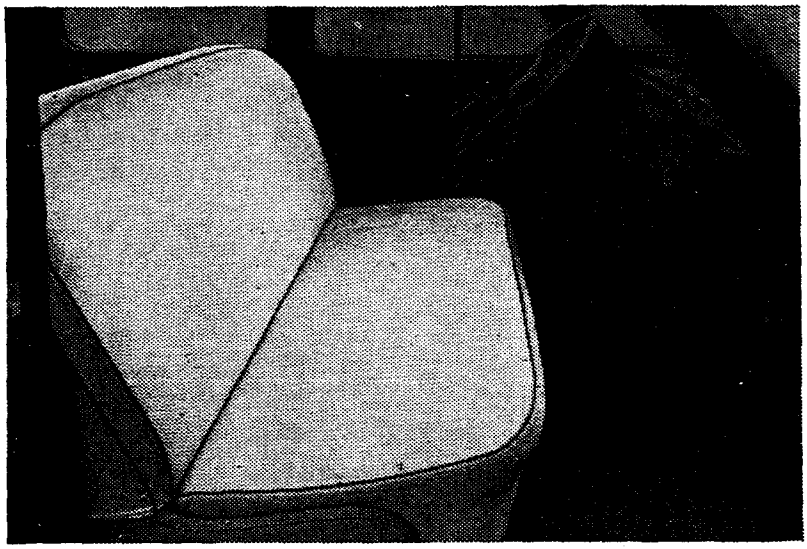
Luggage equipment suitable for all modes of travel is available to fit the luggage compartments of all Cadillac and LaSalle Touring Sedan body styles. It is offered in brown and white striped ducoid with handles and edgings in natural cow hide. Three cases are available as follows:

The Aviatrix, for women, lined with beige rayon, has hangers for seven or more dresses.

The Aviator, for men, provides for hanging two suits without wrinkling and has ample space for all men's travel needs.

The Wardrolette, a general utility case, is capacious and convenient. At the end of a journey, clothing may be lifted out and hung in a closet on the same clothes hangers.

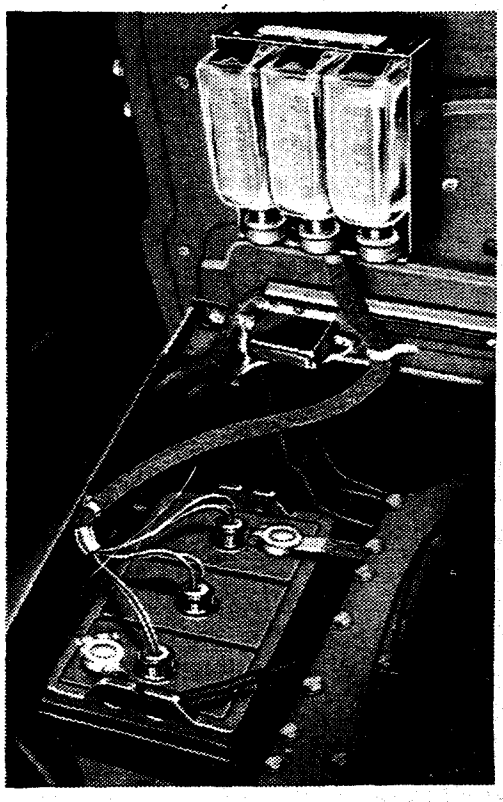




SEAT COVERS

Cadillac Sea-Breeze Seat Covers offer a cool, comfortable ride at all times. In addition, their use will keep the upholstery at its finest for special occasions.

AUTOMATIC BATTERY FILLER



The Cadillac Automatic Battery Filler is one of the most important inventions in the automotive field in recent years. Its outstanding advantage lies in the fact that it maintains the correct water level in the battery at all times, greatly lengthening battery life and materially reducing the number of rechargings required.

MAJOR POINTS OF COMPARISON

	LaSalle	Cadillac Sixty	Cadillac V-8	Cadillac Fleetwood	Cadillac Sixteen
ENGINE					
Design	90° V-type	90° V-type	90° V-type	90° V-type	135° V-type
Displacement	322 cu. in.	346 cu. in.	346 cu. in.	346 cu. in.	431 cu. in.
Bore and stroke	3⅜" x 4½"	3½" x 4½"	3½" x 4½"	3½" x 4½"	3¼" x 3¼"
Rated horsepower	125 @ 3400	135 @ 3400	135 @ 3400	140 @ 3400	185 @ 3600
Taxable horsepower	36.45	39.20	39.20	39.20	67.60
Standard compression ratio	6.25-1	6.25-1	6.25-1	6.7-1	6.8-1
Syncro-Flex flywheel	No	Yes	Yes	Yes	No
Torsional vibration dampener	No	Yes	Yes	Yes	Yes
Wrist pin	Straight bore	Tapered bore	Tapered bore	Tapered bore	Locked in rod
Carburetor size	1⅛"	1¼"	1¼"	1¼"	Two-1⅛"
Choke	Thermostatic	Electric	Electric	Electric	Thermostatic
Fuel tank capacity	22 gals.	22 gals. Spec. 24 gals.	26.5 gals.	26.5 gals.	26.5 gals.
Peak load generator	Voltage Reg.	Voltage Reg.	Voltage Reg.	Current Control and Voltage Reg.	Current Control and Voltage Reg.
Clutch facing area	107 sq. in.	124 sq. in.	124 sq. in.	124 sq. in.	132 sq. in.
BATTERY					
Amperes	110	110	110	130	164
Plates	17	17	17	17	21

MAJOR POINTS OF COMPARISON—Cont'd

	Cadillac Sixty LaSalle	Cadillac Sixty Special	Cadillac V-8	Cadillac Fleetwood	Cadillac Sixteen
CHASSIS					
Wheelbase	124″	127″	132″	141″	141″
Overall length with bumpers	201¾″	207⅝″	211⅜″	220⅝″	220⅝″
Frame	Rigid X, I-beam	Double drop X, I-beam	Rigid X, Channel beam	Rigid X, Channel beam	Rigid X, Channel beam
Knee action coils	Encompassed by side bars	Encompassed by side bars	Outside side bars	Outside side bars	Outside side bars
Steering drag link	Cross mounted	Cross mounted	Longitudinal	Longitudinal	Longitudinal
BRAKES					
Brake lining area	220 sq. in.	220 sq. in.	246 sq. in.	258 sq. in.	258 sq. in.
Braking ratio	54½% front, 45½% rear	54½% front, 45½% rear	54½% front, 45½% rear	57% front, 43% rear	57% front, 43% rear
SHOCK ABSORBERS					
Front	End-to-end	End-to-end	End-to-end	End-to-end	End-to-end
Rear	End-to-end	End-to-end	Dash Pot Inertia manual adj.	Dash Pot Inertia manual adj.	Dash Pot Inertia manual adj.
Front stabilizer location	Forward of front susp.	Forward of front susp.	Rear of front suspension	Rear of front suspension	Rear of front suspension

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MAJOR POINTS OF COMPARISON—Cont'd

	LaSalle	Cadillac Sixty	Cadillac V-8	Cadillac Fleetwood	Cadillac Sixteen
SPRING SHACKLES					
Type	Compr'sn "U"	Compr'sn "U"	Double bar	Double bar	Double bar
Attachment	All threaded	All threaded	Rubber front and upper. Threaded lower	Rubber front and upper. Threaded lower	Rubber front and upper. Threaded lower
REAR AXLE					
Differential adjustm't	Shim	Shim	Threaded	Threaded	Threaded
Rear axle ratio	3.92—1	3.92—1	4.58—1	4.58—1	4.31—1
TIRES	7.00—16 4 ply	7.00—16 4 ply	7.50—16 4 ply	7.50—16 6 ply	7.50—16 6 ply
BODY					
Types	5	4, Spec., 1	3	12	12
Construction	Fisher Unisteel	Fisher Steel Construction	Fisher Steel Construction	Fleetwood Steel Construction	Fleetwood Steel Construction
Color options	14	14	14	14	14
Upholstery options	4 cloths 4 leathers	6 cloths 4 leathers Spec., 6 cloths	6 cloths 4 leathers	7 cloths 4 leathers	10 cloths 5 leathers

DETAILED SPECIFICATIONS

ENGINE	LaSalle	Cadillac Sixty Cadillac V-8	Cadillac Fleetwood	Cadillac Sixteen
No. of cylinders	8	8	8	16
Valve arrangement	L-head	L-head	L-head	L-head
Bore and stroke	3⅜" x 4½"	3½" x 4½"	3½" x 4½"	3¼" x 3¼"
Engine mounted on:				
Front	Vulcanized rubber	Vulcanized rubber	Vulcanized rubber	Vulcanized rubber
Rear	Bolt through rubber	Bolt through rubber	Bolt through rubber	Bolt through rubber
Rubber mounting used at	All points	All points	All points	All points
Number of points of suspension	3	3	3	5
Engine make	Own	Own	Own	Own
Engine model	38-50	38-60, 38-65	38-75	38-90
Cylinder arrangement	90° V-8	90° V-8	90° V-8	135° V-16
Cylinder head material	Cast iron	Cast iron	Cast iron	Cast iron
Piston displacement	322	346	346	431
Taxable horsepower	36.45	39.20	39.20	67.60
Maximum brake horsepower at R.P.M.	125 at 3400	135 at 3400	140 at 3400	185 at 3600
Standard compression ratio	6.25 to 1	6.25 to 1	6.7 to 1	6.8 to 1
Standard compression pressure (lbs.)	155# at 1000 R.P.M.	155# at 1000 R.P.M.	170# at 1000 R.P.M.	180# at 1000 R.P.M.
PISTONS AND RINGS				
Piston make	Lynite & Bohn	Lynite & Bohn	Lynite & Bohn	Lynite & Bohn
Piston material	Lo-Ex aluminum alloy	Lo-Ex aluminum alloy	Lo-Ex aluminum alloy	Lo-Ex aluminum alloy
Piston features	T-slot, anodized finish	T-slot, anodized finish	T-slot, anodized finish	T-slot, anodized finish
Piston weight, oz. (without rings, pin or locking rings)	16.88	18.30	18.30	15.280
Piston weight, oz. (with rings, pin and locking rings)	25.13	25.13	25.13	21.136
Piston length	4⅛"	4⅛"	4⅛"	3¾"
Piston clearance	.0019"	.0021"	.0021"	.0017"
No. of oil rings used per piston	2	2	2	1
No. of compression rings used per piston	2	2	2	2
RODS AND PINS				
Wrist pin length	2 15/16"	3 1/16"	3 1/16"	2 25/32"
Wrist pin diameter	⅞"	⅞"	⅞"	13/16"

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DETAILED SPECIFICATIONS—Cont'd

RODS AND PINS—Cont'd	LaSalle	Cadillac Sixty Cadillac V-8	Cadillac Fleetwood	Cadillac Sixteen
Is wrist pin locked in piston or floating?	Floating	Floating	Floating	Locked in rod
Wrist pin clearance	.0004 press at one end .0000 clearance other end	.0004 press fit one end .0000 clearance other end	.0004 press fit one end .0000 clearance other end	.00035" clearance
Wrist pin hole finish	Diamond bore	Diamond bore	Diamond bore	Diamond bore
Connecting rod length, center to center	8¾"	8¾"	8¾"	6⅜"
Connecting rod material	#1035 steel	#1035 steel	#1035 steel	#1340 steel
Connecting rod weight, ounces	37.472	37.472	37.472	24.528
Crankpin journal diameter and length	2.460" x 2 1/32"	2.460" x 2 1/32"	2.460" x 2 1/32"	2" x 1¾"
Connecting rod bearing material	#1010 steel backed babbitt	#1010 steel backed babbitt	#1010 steel backed babbitt	#1010 steel backed babbitt
Connecting rod bearing clearance	.0015"	.0015"	.0015"	.0015"
Connecting rod bearing end play	.003-.006"	.003-.006"	.003-.006"	.0045-.0075"
Connecting rod bearing poured, spun or separate	Separate	Separate	Separate	Separate
Rods and pistons removed from	Above	Above	Above	Above
CRANKSHAFT				
Vibration dampener used	No	Yes	Yes	Yes
Crankshaft counterweights used, No. of	6	6	6	8
Torsional vibration dampener type	None	Laminated springs	Laminated springs	Rubber
Bending vibration dampener type	None	Flywheel	Flywheel	None
Which main bearing takes thrust?	Center (#2)	Center (#2)	Center (#2)	Center (#5)
Crankshaft end play	.001-.005"	.001-.005"	.001-.005"	
Main bearing material	Br. or st. backed bab.	Br. or st. backed bab.	Br. or st. backed bab.	Steel backed babbitt
Main bearing clearance	.0015"	.0015"	.0015"	.0015"
Main bearing type	Slip-in	Slip-in	Slip-in	Slip-in
No. 1 main bearing journal, diameter & length	2½" x 1 1/16"	2½" x 1 1/16"	2½" x 1 1/16"	2½" x 1 1/16"
No. 2 main bearing journal, diameter & length	2½" x 1 5/32"	2½" x 1 5/32"	2½" x 1 5/32"	2½" x 1 1/16"
No. 3 main bearing journal, diameter & length	2½" x 31/32"	2½" x 31/32"	2½" x 31/32"	2½" x 1 1/16"
No. 4 main bearing journal, diameter & length				2½" x 1 5/16"
No. 5 main bearing journal, diameter & length				2½" x 1 1/16"
No. 6 main bearing journal, diameter & length				2½" x 1 1/16"
No. 7 main bearing journal, diameter & length				2½" x 1 1/16"
No. 8 main bearing journal, diameter & length				2½" x 1 1/16"
No. 9 main bearing journal, diameter & length				2½" x 2 5/32"

TIMING CHAIN	LaSalle	Cadillac Sixty Cadillac V-8	Cadillac Fleetwood	Cadillac Sixteen
Timing chain make	Morse	Morse	Morse	Morse
Timing chain model	Type C #3682-R	Type C #3682-R	Type C #3682-R	Type C #3682-R
Timing chain length, inches	23¼"	23¼"	23¼"	23¼"
Timing chain, number of links	62	62	62	62
Timing chain, width	1¼" side guide	1¼" side guide	1¼" side guide	1¼" side guide
Timing chain, pitch	⅜"	⅜"	⅜"	⅜"
Timing chain adjustment	None	None	None	None
VALVES				
Intake valve head actual overall diameter	1.876-1.886"	1.876-1.886"	1.876-1.886"	1.495-1.505"
Intake valve angle of seat	45°	45°	45°	45°
Insert used?	No	No	No	No
Valve seat cooled by	Directed water circulation	Directed water circulation	Directed water circulation	Directed water circulation
Intake valve stem to guide clearance	.0023"	.0023"	.0023"	.0023"
Intake valve lift	.335"	.335"	.335"	.290"
Intake valve spring pressure and length				
with valve closed	66 lbs.-1.926"	66 lbs.-1.926"	66 lbs.-1.926"	49 lbs.-1.8125"
with valve open	145 lbs.-1.581"	145 lbs.-1.581"	145 lbs.-1.581"	93.5 lbs.-1.5225"
Is tappet clearance automatically adjusted?	Yes	Yes	Yes	Yes
Exhaust valve head actual overall diameter	1.628-1.636"	1.626-1.636"	1.626-1.636"	1.370-1.380"
Exhaust valve angle of seat	45 degrees	45 degrees	45 degrees	45 degrees
Insert used?	No	No	No	No
Valve seat cooled by	Directed water circulation	Directed water circulation	Directed water circulation	Distributing tube
Exhaust valve stem to guide clearance	.0033"	.0033"	.0033"	.0033"
Exhaust valve lift	.345"	.345"	.345"	.302"
Exhaust valve spring pressure and length				
with valve closed	66#-1.926"	66#-1.926"	66#-1.926"	49#-1.8125"
with valve open	145#-1.581"	145#-1.581"	145#-1.581"	95.5#-1.510"
Is tappet clearance automatically adjusted?	Yes	Yes	Yes	Yes

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DETAILED SPECIFICATIONS—Cont'd

VALVES—Cont'd	LaSalle	Cadillac Sixty Cadillac V-8	Cadillac Fleetwood	Cadillac Sixteen
Valve timing—Intake opens	T.D.C.	T.D.C.	T.D.C.	8° B.T.C.
Valve timing—Intake closes	42° A.B.C.	42° A.B.C.	42° A.B.C.	28° A.B.C.
Valve timing—Exhaust opens	52° B.B.C.	52° B.B.C.	52° B.B.C.	44° B.B.C.
Valve timing—Exhaust closes	10° A.T.C.	10° A.T.C.	10° A.T.C.	12° A.T.C.
LUBRICATION				
Valve lubrication method	Pressure	Pressure	Pressure	Pressure
Lubricating system type	Pressure	Pressure	Pressure	Pressure
Oil pressure to main bearings	Yes	Yes	Yes	Yes
Oil pressure to connecting rod bearings	Yes	Yes	Yes	Yes
Oil pressure to wrist pins	Yes	Yes	Yes	No
Oil pressure to camshaft bearings	Yes	Yes	Yes	Yes
Timing gear lubrication	Positive	Positive	Positive	Positive
Oil pump type	Helical gear	Helical gear	Helical gear	Helical gear
Oil grade recommended—S.A.E. viscosity				
Summer	30 moderate speeds 40-50 high speeds	30 moderate speeds 40-50 high speeds	30 moderate speeds 40-50 high speeds	30 moderate speeds 40-50 high speeds
Winter	0° to 32°—20W below zero—10W	0° to 32°—20W below zero—10W	0° to 32°—20W below zero—10W	0° to 32°—20W below zero—10W
Normal oil pressure lbs. at M.P.H.	25# at 30 M.P.H.	25# at 30 M.P.H.	25# at 30 M.P.H.	25# at 30 M.P.H.
Pressure at which relief valve opens	30 lbs.	30 lbs.	30 lbs.	30 lbs.
Capacity of oil reservoir, quarts	7	7	7	11
Drain oil, miles	2000	2000	2000	2000
Type of oil drain	Threaded plug	Threaded plug	Threaded plug	Threaded plug
Oil reservoir gauge type	Dip stick	Dip stick	Dip stick	Float
External oil filter, make	None	None	None	Fram
Chassis lubrication type	High pressure	High pressure	High pressure	High pressure
Crankcase ventilating system	Yes	Yes	Yes	Yes
FUEL				
Gasoline tank capacity	22 gallons	Sixty—22 gals. Spec.—24 gals. V-8—26.5 gals.	26.5 gallons	26.5 gallons
Fuel feed type	Camshaft pump	Camshaft pump	Camshaft pump	2 mechanical pumps
Carburetor make	Carter	Stromberg	Stromberg	Carter
Carburetor size	1⅛"	1¼"	1¼"	1⅛"

DETAILED SPECIFICATIONS—Cont'd

FUEL—Cont'd	LaSalle	Cadillac Sixty Cadillac V-8	Cadillac Fleetwood	Cadillac Sixteen
Carburetor type	Plain tube	Plain tube	Plain tube	Plain tube
Up or down draft	Down draft	Down draft	Down draft	Down draft
Single or dual	Dual	Dual	Dual	Dual
Heat adjustment	None	None	None	None
Automatic choke type	Thermostatic	Electric	Electric	Thermostatic
Automatic choke make	Carter	Stromberg	Stromberg	Carter
Air cleaner make	A.C.	A.C	A.C.	A.C.
Intake silencer make	A.C.	A.C.	A.C.	A.C.
COOLING				
Cooling circulation, type of	Pump	Pump	Pump	Two pumps
Water pump type	Centrifugal	Centrifugal	Centrifugal	Centrifugal
Water pump drive	Vee belt	Vee belt	Vee belt	Vee belt
Radiator shutter make and control	Own-Thermostatic	Own-Thermostatic	Own-Thermostatic	Own-Thermostatic
Radiator core type	Cellular	Cellular	Cellular	Cellular
Radiator core make	Harrison	Harrison	Harrison	Harrison
Cooling capacity, gallons	6¼	Spec. 6, 60 & V-8—6¼	6¼	
Water jackets full length of cylinders	Yes	Yes	Yes	Yes
Fan belt type	1-Vee belt	1-Vee belt	1-Vee belt	2-Vee belts
Fan belt length (pitch circumf.)	41¾"	41¾"	41¾"	49⅝"
Fan belt width, maximum	1$\frac{1}{64}$"	1$\frac{1}{64}$"	1$\frac{1}{64}$"	⅝"
Fan drive ratio	.95 to 1	.95 to 1	.95 to 1	.95 to 1
IGNITION				
Ignition unit make	Delco-Remy #665-G	Delco-Remy #665-G	Delco-Remy #665-G	Delco-Remy
Manual advance, degrees	20°	20°	20°	20°
Maximum automatic advance, degrees	22°	22°	22°	28°
Vacuum advance, degrees	None	None	None	None
Distributor breaker gap	.0125-.0175"	.0125-.0175"	.0125-.0175"	.0125-.0175"
Timing, breaker points open at	5° B.T.C.	5° B.T.C.	5° B.T.C.	
Firing order	Front 2-4-6-8 1-3-5-7 1-8-7-3-6-5-4-2	Front 2-4-6-8 1-3-5-7 1-8-7-3-6-5-4-2	Front 2-4-6-8 1-3-5-7 1-8-7-3-6-5-4-2	Front 2-4-6-8-10-12-14-16 1-3-5-7-9-11-13-15 1-4-9-12-3-16-11-8-15-14 7-6-13-2-5-10
Ignition coil make	Delco-Remy #539-C	Delco-Remy #539-C	Delco-Remy #539-C	Delco-Remy #553-E (two)

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DETAILED SPECIFICATIONS—Cont'd

IGNITION—Cont'd	LaSalle	Cadillac Sixty Cadillac V-8	Cadillac Fleetwood	Cadillac Sixteen
Amperage draw of coil with engine stopped	4.4	4.4	4.4	4.4
Amperage draw of coil with engine idling	2.2	2.2	2.2	2.2
Spark plug thread	14 m.m.	14 m.m.	14 m.m.	14 m.m.
Spark plug model	#45	#45	#45	#45
Spark plug make	A.C.	A.C.	A.C.	A.C.
Spark plug gap	.025-.030"	.025-.030"	.025-.030"	.025-.030"
BATTERY				
Battery make	Delco	Delco	Delco	Delco
Battery number	17 K.1W.	17 K.1W.	17 D.W.	21 D.W.
Battery capacity—ampere hours	110	110	130	164
Battery bench charging rate—start	10	10	10	10
Battery bench charging rate—finish	8	8	8	8
Which battery terminal is grounded?	Positive	Positive	Positive	Positive
STARTING MOTOR				
Starting motor make	Delco-Remy 727-V (4-pole)	Delco-Remy 727-V (4-pole)	Delco-Remy 727-V (4-pole)	Delco-Remy #000714 (6-pole)
Starting motor drive	Solenoid shifted gear	Solenoid shifted gear	Solenoid shifted gear	Solenoid shifted gear
Automatic starting device	Delco-Remy push button	Delco-Remy push button	Delco-Remy push button	Delco-Remy push button
Starting motor pinion meshes flywheel	Front	Front	Front	Front
Flywheel teeth, integral or steel ring	Steel ring	Steel ring	Steel ring	Steel ring
Gear ratio between starter armature and flywheel	17 to 1 (approx.)	17 to 1 (approx.)	17 to 1 (approx.)	17 to 1 (approx.)
GENERATOR	Peak load	Peak load	Peak load	Peak load
Generator make	Delco-Remy #1101051	Sixty DR #1101051 V-8 DR #1101054	D.R.—#1102652	D.R.—#1102651
Generator driven by	Belt	Belt	Belt	Friction drive from fan pulley
Is generator air cooled?	Yes	Yes	Yes	Yes
Cutout relay make				
Voltage at cutout closing	6.5-7.0	6.5-7.0	6.8-7.3	6.8-7.3
Amperes to open cutout	0—3	0—3	0—2	0—2

DETAILED SPECIFICATIONS—Cont'd

GENERATOR—Cont'd	LaSalle	Cadillac Sixty Cadillac V-8	Cadillac Fleetwood	Cadillac Sixteen
Generator normal charging rate	28-30 amps. max cold. Due to voltage regulation actual charging rate is controlled by state of charge of battery	28 amps. max. Due to voltage regulation actual charging rate is controlled by state of charge of battery	28 amps. max. Due to voltage regulation actual charging rate is controlled by state of charge of battery	28 amps. max. Due to voltage regulation actual charging rate is controlled by state of charge of battery
Generator armature speed for normal charging	4550 R.P.M.	Sixty 4550 R.P.M. V-8 4650 R.P.M.	1650 R.P.M.	1650 R.P.M.
Car speed for maximum normal charging	50 M.P.H.	50 M.P.H.	17 M.P.H.	17 M.P.H.
Generator belt type	Vee	Vee	Vee	Friction drive from fan pulley
Generator belt length (pitch circumf.)	47 3/16"	47 3/16"	47 3/16"	
Generator belt width, maximum	3/4"	3/4"	3/4"	
Generator type	Peak load	Peak load	Peak load	Peak load
LAMPS				
Lighting switch make	Delco-Remy #1994502	Delco-Remy #1994502	Delco-Remy #1994502	Delco-Remy #1994502
Are double or triple filament bulbs used?	Double 32-32 c.p.	Double 32-32 c.p.	Double 32-32 c.p.	Double 32-32 c.p.
How are headlamps dimmed?	Depressed beam foot switch	Depressed beam foot switch	Depressed beam foot switch	Depressed beam foot switch
Headlight make	Guide-Multi-beam	Guide-Multi-beam	Guide-Multi-beam	Guide-Multi-beam
Headlight reflector make	Parabolic	Parabolic	Parabolic	Parabolic
Headlight cover glass make	Guide	Guide	Guide	Guide
Headlight cover glass diameter	7"	7"	7"	7"
Parking light make	In headlamp	In headlamp	In headlamp	Guide on fenders
Tail light make	Guide	Guide	Guide	Guide
Horn type	Airtone	Airtone	Airtone	Airtone
Horn make	Delco-Remy K-33-D	Delco-Remy K-33-D	Delco-Remy K-33-D	Delco-Remy K-33-D
Amperage draw of horn	24-28	24-28	24-28	24-28
CLUTCH				
Clutch make	Long	Long	Long	Long
Operated dry or in oil	Dry	Dry	Dry	Dry
Clutch vibration insulator or neutralizer	Coil spring type	Coil spring type	Coil spring type	No
Number of clutch driven discs	1	1	1	1

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DETAILED SPECIFICATIONS—Cont'd

CLUTCH—Cont'd	LaSalle	Cadillac Sixty Cadillac V-8	Cadillac Fleetwood	Cadillac Sixteen
Clutch facing material	Woven	Woven	Woven	Woven
Clutch facing inside diameter	6½"	6½"	6½"	7"
Clutch facing outside diameter	10½"	11"	11"	11½"
Clutch facing thickness	.137"	.125"	.125"	.125"
Number of clutch facing used	2	2	2	2
Facing area	107 sq. in.	124 sq. in.	124 sq. in.	132 sq. in.

TRANSMISSION				
Transmission make	Own	Own	Own	Own
Transmission location	Unit	Unit	Unit	Unit
Number of forward speeds	3	3	3	3
Control	Manual	Manual	Manual	Manual
Gear ratio in high	3.92	Sixty: 3.92 V-8: 4.58	4.58	4.31
Transmission ratio in second	1.53 to 1	1.53 to 1	1.53 to 1	1.53 to 1
Transmission ratio in low	2.39 to 1	2.39 to 1	2.39 to 1	2.39 to 1
Transmission ratio in reverse	2.39 to 1	2.39 to 1	2.39 to 1	2.39 to 1
Type of gears—1st	Sliding-helical	Sliding-helical	Sliding-helical	Sliding-helical
Type of gears—2nd	Constant mesh helical	Constant mesh helical	Constant mesh helical	Constant mesh helical
Type of gears—reverse	Sliding-helical	Sliding-helical	Sliding-helical	Sliding-helical
Synchronous meshing 2nd and 3rd gears	Yes	Yes	Yes	Yes
Transmission oil capacity, pints	2½	2½	2½	2½
Transmission oil grade recommended—S.A.E. viscosity	S.A.E. 90 E.P.	S.A.E. 90 E.P.	S.A.E. 90 E.P.	S.A.E. 90 E.P.
Universal make	Mechanics	Mechanics	Mechanics	Mechanics
Universal model	#3-C	#3-C	#3-C	#3-C
Universal type	Needle bearing	Needle bearing	Needle bearing	Needle bearing
Universal joints lubricated	Permanently	Permanently	Permanently	Permanently
Drive and torque taken through	Rear springs	Rear springs	Rear springs	Rear springs

REAR AXLE	LaSalle	Cadillac Sixty	Cadillac V-8 Fleetwood	Cadillac Sixteen
Rear axle make	Own	Own	Own	Own
Rear axle type	Semi-floating	Semi-floating	Semi-floating	Semi-floating

DETAILED SPECIFICATIONS—Cont'd

REAR AXLE—Cont'd	LaSalle	Cadillac Sixty	Cadillac V-8 Fleetwood	Cadillac Sixteen
Minimum road clearance under center of rear axle, tires inflated	8¼"	8¼"	V-8: 7⅞" Fleetwood: 8"	8"
Differential gear make	Own	Own	Own	Own
Rear axle oil capacity, quarts	2½	2½	3	3
Rear axle oil grade recommended, S.A.E. viscosity	Used approved lubricant	Used approved lubricant	Used approved lubricant	Used approved lubricant
Type of final gearing	Hypoid	Hypoid	Hypoid	Hypoid
Gear ratio, standard 5 pass. sedan	3.92	3.92	4.58	4.31
Optional gear ratio	None	None	None	None
No. of teeth in ring gear	47	47	55	56
No. of teeth in pinion	12	12	12	13
How is the pinion adjusted?	Shim	Shim	Shim	Shim
How is pinion bearing adjusted?	None	None	None	None
Are pinion bearings in sleeve	No	No	No	No
Backlash between pinion and ring gear	.004-.008"	.004-.008"	.004-.008"	.004-.008"
TIRES AND WHEELS				
Tire make	U. S. & Firestone	U. S. & Firestone	U. S. & Firestone	U. S. & Firestone
Tire size	7.00-16	7.00-16	7.50-16	7.50-16
Number of plies	4	4	V-8: 4 Fleetwood: 6	6
Inflation pressure front and rear	26# minimum	26#, Spec. #28	V-8: 28# Fleetwood: 32#	32#
Rim type				
Rim diameter	16"	16"	16"	16"
Rim width	4.50"	4.50"	5.00"	5.00"
Axle clearance, for jack, tires inflated, front	Bumper jack	Bumper jack	9⅝"	9⅝"
Axle clearance, for jack, tires inflated, rear	Bumper jack	Bumper jack	V-8: 11⅜" Fleetwood: 12¼"	12¼"
Wheel type	Disc	Disc	Disc	Disc
Wheel make	Kelsey-Hayes	Kelsey-Hayes	Kelsey-Hayes	Kelsey-Hayes
SPRINGS				
Front, suspension, independent or conventional	Independent	Independent	Independent	Independent
Front spring type	Helical	Helical	Helical	Helical

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DETAILED SPECIFICATIONS—Cont'd

SPRINGS—Cont'd	LaSalle	Cadillac Sixty	Cadillac V-8 Fleetwood	Cadillac Sixteen
Front spring material	GM #9260 steel	GM #9260 steel	GM #9260 steel	GM #9260 steel
Rear, suspension, independent or conventional	Conventional	Conventional	Conventional	Conventional
Rear spring type	Semi-elliptic	Semi-elliptic	Semi-elliptic	Semi-elliptic
Rear spring material	GM #9260 steel	GM #9260 steel	GM #9260 steel	GM #9260 steel
Rear spring length	54½"	54½"	62"	62"
Rear spring width	2"	2"	2¼"	2¼"
Rear spring number of leaves—5 pass. sedan	9	9	V-8: 9 Fleetwood: 10	10
Spring leaves lubricated with	Wax impregnated liners	Wax impregnated liners	Wax impregnated liners	Wax impregnated liners
Spring shackles type, rear	Threaded	Threaded	Rubber and threaded	Rubber and threaded
Spring eye type	Threaded	Threaded	Rubber	Rubber
Stabilizers	Front and rear	Front and rear	Front and rear	Front and rear
STEERING				
Steering gear type	Worm and double tooth roller	Worm and double tooth roller	Worm and double tooth roller	Worm and double tooth roller
Steering gear make	Saginaw	Saginaw	Saginaw	Saginaw
Caster angle	Negative ¾° to 0°	Negative ¾° to 0°	0° to ¼°	0° to ¼°
Camber angle	¼° to 1°	¼° to 1°	0° to ½°	0° to ½°
Toe-in inches, car in motion	0 to 1/16"	0 to 1/16"	0 to 1/16"	1 to 1/16"
Toe-in inches, car at rest	1/32 to 3/32"	1/32 to 3/32"	1/32 to 3/32"	1/32 to 3/32"
Crosswise inclination of kingpin, degrees	4° 51′	4° 51′	5° 38′	5° 38°
Front suspension type	Forked arms	Forked arms	Forked arms	Forked arms
Front suspension make	Own	Own	Own	Own
Forked arm bearings, type	Threaded	Threaded	Threaded	Threaded
BRAKES				
Number of complete brakes	4	4	4	4
Foot brakes, make	Bendix	Bendix	Bendix	Bendix
Foot brakes, type of mechanism	Hydraulic	Hydraulic	Hydraulic	Hydraulic
Vacuum booster make	None	None	None	None
Brake lining molded or woven	Molded	Molded	Molded	Molded
Brake drum material	Composite	Composite	Composite	Composite
Rear brake drum diameter	12"	12"	V-8: 12" Fleetwood: 14"	14"

DETAILED SPECIFICATIONS—Cont'd

BRAKES—Cont'd	Cadillac Sixty LaSalle	Cadillac Sixty Special	Cadillac V-8 Fleetwood		Cadillac Sixteen
Rear brake internal or external	Internal	Internal	Internal		Internal
Rear brake lining, length per wheel			V-8	Fleetwood	
Forward shoe	12 15/16"	12 15/16"	12 15/16"	15"	15"
Reverse shoe	12 15/16"	12 15/16"	12 15/16"	15"	15"
Total	25 7/8"	25 7/8"	25 7/8"	30"	30"
Rear brake lining width	2"	2"	2½"	2¼"	2¼"
Rear brake lining thickness	3/16"	3/16"	3/16"	¼"	¼"
Rear brake clearance	.010"	.010"	.010"		.010"
			V-8	Fleetwood	
Front brake drum diameter	12"	12"	12"	14"	14"
Front brake drum material	Composite	Composite	Composite		Composite
Front brake drum internal or external	Internal	Internal	Internal		Internal
Front brake lining, length per wheel					
Forward shoe	12 15/16"	12 15/16"	12 15/16"	12¼"	12¼"
Reverse shoe	12 15/16"	12 15/16"	12 15/16"	15"	15"
Total	25 7/8"	25 7/8"	25 7/8"	27¼"	27¼"
Front brake lining width	2¼"	2¼"	2¼"		2¼"
Front brake lining thickness	3/16"	3/16"	3/16"	¼"	¼"
Front brake clearance	.010"	.010"	.010"		.010"
Total foot braking area	220 sq. in.	220 sq. in.	V-8: 246 sq. in. Flt.: 258 sq. in.		258 sq. in.
Percent braking power on rear wheels	45½	45½	V-8: 45½ Fleetwood: 43		43
Hand brake location	Under dash on left side	Under dash on left side	Under dash on left side		Under dash on left side
Hand brake lever operates on	Rear service brakes	Rear service brakes	Rear service brakes		Rear service brakes
FRAME					
Frame make	A. O. Smith	A. O. Smith	A. O. Smith		A. O. Smith
Frame depth, maximum	8 11/16"	7¼"	V-8: 8 15/16" Flt.: 9"		9"
Frame thickness, maximum	⅛"	⅛"	⅛"		⅛"

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DETAILED SPECIFICATIONS—Cont'd

FRAME—Cont'd	Cadillac Sixty LaSalle	Cadillac Sixty Special	Cadillac V-8 Fleetwood	Cadillac Sixteen
Width, maximum	2⅜"	2"	V-8: 2¼" Flt.: 2¼"	2¼"
Wheelbase	124"	127"	V-8: 132" Flt.: 141"	141"
Tread—front	58"	58"	60½"	60½"
Tread—rear	59"	61"	V-8: 62⅜" Flt.: 62½"	62½"
First serial number	60—8,270,001 LaS.—2,270,001	6,270,001	V-8: 7,270,001 Flt.: 3,270,001	5,270,001
Serial number location	On crankcase behind left cylinder block and parallel to the body dash	On crankcase behind left cylinder block and parallel to the body dash	On crankcase behind left cylinder block and parallel to the body dash	Upper left rear corner of left cylinder block parallel to cylinder head
Overall length with bumpers	201 11/16"	207¾"	V-8: 211⅜" Flt.: 220⅝"	220⅝"
BEARINGS				
Starter motor commutator end bearing—type	In cast iron frame	In cast iron frame	In cast iron frame	Bronze bushing ½" x 9/16" x ⅞"
Starter motor drive end bearing type	Bronze bushing	Bronze bushing	Bronze bushing	Bronze bushing
Starter motor drive end bearing size	¾" x 13/16" x 23/32"	¾" x 13/16" x 23/32"	¾" x 13/16" x 23/32"	¾" x 13/16" x 23/32"
Starter motor outboard bearing type	Bronze bushing	Bronze bushing	Bronze bushing	Bronze bushing
Starter motor outboard bearing size	9/16" x ⅝" x ¾"	9/16" x ⅝" x ¾"	9/16" x ⅝" x ¾"	9/16" x ⅝" x ¾"
Generator commutator end bearing type	Bronze bushing	Bronze bushing	Bronze bushing	N. D. Ball
Generator commutator end bearing size or Number	9/16" x ¾" x ¾"	9/16" x ¾" x ¾"	9/16" x ¾" x ¾"	#8503
Generator drive end bearing make or type	N. D. Ball	N. D. Ball	N. D. Ball	N. D. Ball
Generator drive end bearing size or number	#1203	#1203	#1203	#1203
Clutch throwout bearing make or type	Bearings Co. of America	Bearings Co. of America	Bearings Co. of America	N. D. Ball
Clutch throwout bearing size or number	C.T.D.S.-56	C.T.D.S.-56	C.T.D.S.-56	C.T.-34
Transmission pocket or spigot bearing make or type	Hyatt Roller	Hyatt Roller	Hyatt Roller	Hyatt Roller
Transmission pocket or spigot bearing size or number	#1294780	#1294780	#1294780	#1294780

DETAILED SPECIFICATIONS—Cont'd

BEARINGS—Cont'd	Cadillac Sixty LaSalle	Cadillac Sixty Special	Cadillac V-8 Fleetwood	Cadillac Sixteen
Clutch pilot bearing make or type	N. D. Ball	N. D. Ball	N. D. Ball	N. D. Ball
Transmission reverse idler bearing	Bronze bushing	Bronze bushing	Bronze bushing	Bronze bushing
Transmission main shaft front bearing make or type	N. D. Ball	N. D. Ball	N. D. Ball	N. D. Ball
Transmission main shaft rear bearing make or type	N. D. Ball	N. D. Ball	N. D. Ball	N. D. Ball
Transmission countershaft front bearing make or type	Needle bearing	Needle bearing	Needle bearing	Needle bearing
Transmission countershaft rear bearing make or type	Needle bearing	Needle bearing	Needle bearing	Needle bearing
Rear axle pinion shaft front bearing make or type	Timken Tapered Roller	Timken Tapered Roller	Timken Tapered Roller	Timken Tapered Roller
Rear axle pinion shaft rear bearing main or type	Timken Tapered Roller	Timken Tapered Roller	Timken Tapered Roller	Timken Tapered Roller
Differential bearing right make or type	Timken Tapered Roller	Timken Tapered Roller	Timken Tapered Roller	Timken Tapered Roller
Differential bearing left make or type	Timken Tapered Roller	Timken Tapered Roller	Timken Tapered Roller	Timken Tapered Roller
Rear wheel bearing make or type	N. D. Ball	N. D. Ball	N. D. Ball	N. D. Ball
Front wheel inner bearing make or type	N. D. Ball	N. D. Ball	N. D. Ball	N. D. Ball
Front wheel outer bearing make or type	N. D. Ball	N. D. Ball	N. D. Ball	N. D. Ball
Kingpin upper bearing make or type	Bronze bushing	Needle bearing	Needle bearing	Needle bearing
Kingpin lower bearing make or type	Bronze bushing	Needle bearing	Needle bearing	Needle bearing
Rear spring front bushing size	11/16"—11 threaded x 2"	Rubber	Rubber	Rubber
Rear spring rear bushing size	11/16"—11 threaded x 2"	11/16"—11 threaded x 2"	13/16"—11 threaded x 2¼"	13/16"—11 threaded x 2¼"
Rear spring shackle bolt—upper	3½" U-type 11/16"—11 threaded	3½" U-type 11/16"—11 threaded	13/16" x 2 9/16" plain	13/16" x 2 9/16" plain
Rear spring shackle bolt—lower	—	—	13/16"—11 x 3 9/16" threaded	13/16"—11 x 3 9/16"

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CADILLAC-LA SALLE PRELIMINARY SERVICE INFORMATION

La Salle V-8, Series 38-50

Cadillac V-8, Series 38-60, 65 and 75

Cadillac V-16, Series 38-90

Service Department

CADILLAC MOTOR CAR DIVISION

General Motors Sales Corp.

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The 38-series Cadillac-LaSalle cars are as follows:

Series	Wheelbase	Engine	Starting Engine No.
38-50	124-inch	322 cu. in. V-8	2270001
38-60	127-inch	346 cu. in. V-8	6270001
38-65	132-inch	346 cu. in. V-8	7270001
38-75	141-inch	346 cu. in. V-8	3270001
38-90	141-inch	431 cu. in. V-16	5270001

Body

The bodies of the 38-series Cadillac and LaSalle cars are new in appearance, but in design and construction they closely resemble the 37-series all-steel bodies. Fleetwood as well as Fisher bodies are of steel construction.

The number of different chassis models in the 38-series has been reduced to five, with a total of 35 body styles as listed below. This list gives in detail the arrangement of seats and windows, location of spare tires, and the use of trunks or other luggage space.

The 38-50 LaSalle body is of the same all-steel construction as the 37-50. The other 38-series bodies are similar in construction except that they are larger and are fitted with wooden main sills to provide a better body mount.

Door arrangements are unchanged except on the 38-60 sedan, on which both the front and the rear doors are hinged at the front. Individually-controlled ventilation has been continued on all 38-series cars. The only change is in the rear quarter windows of 38-65, 75 and 90 sedans, in which sliding rather than swinging window panels are used.

Two single-bitted keys, a driver's key and a compartment key, are furnished for 38-series cars. Both right and left front doors have locking handles on 38-series Cadillacs, but not on LaSalle. The familiar press button type interior door locks are used on all series.

Service operations on all of the 38-series bodies are essentially the same as for the 37-50 and 60 all-steel bodies.

Body Styles

Series 38-50 (124″ Wheelbase)—Fisher Bodies		
2 Coupe	38-5027	Quarter windows, 2 opera seats, spare under deck
2 Convertible Coupe	38-5067	Fabric top, blind quarter, rumble seat, spare under rumble
5 Convertible Sedan	38-5049	Plain back, luggage space, spare in right fenderwell.
5 Touring Sedan, 2-Door	38-5011	Built-in-trunk, concealed spare, divided front seat back
5 Touring Sedan, 4-Door	38-5019	Built-in trunk, concealed spare
Series 38-60 (127″ Wheelbase)—Fisher Body		
5 Touring Sedan, 4-Door	38-6019	Built-in trunk, concealed spare, chrome window frames.
Series 38-65 (132″ Wheelbase)—Fisher Bodies		
5 Touring Sedan, 4-Door	38-6519	Built-in trunk, concealed spare
5 Formal Sedan	38-6519F	Built-in trunk, concealed spare, glass division for front compartment
5 Convertible Sedan	38-6549	Plain back, luggage space, spare in right fenderwell
Series 38-75 (141″ Wheelbase)—Business Cars		
7 Business Touring Sedan		Built-in trunk, concealed spare, livery trim, auxiliary seats
7 Business Touring Imperial		Built-in trunk, concealed spare, livery trim, auxiliary seats, imperial division for front compartment
Series 38-75, Series 38-90 (141″ Wheelbase)—Fleetwood Bodies		
2 Coupe	38-7557	Quarter windows, 2 opera seats, spare under deck shelf
5 Coupe	38-7557B	Quarter windows, full width rear seat, spare under deck shelf
2 Convertible Coupe	38-7567	Fabric top, blind quarter, 2 opera seats, spare under deck
5 Touring Sedan, 4-Door	38-7519	Built-in trunk, concealed spare
5 Formal Sedan	38-7519F	Built-in trunk, concealed spare, glass division for front compartment
5 Formal Sedan	38-7559	Built-in trunk, concealed spare, glass division, 2 opera seats, leather blind quarter
5 Town Sedan	38-7539	Built-in trunk, concealed spare, close coupled, blind quarter
5 Convertible Sedan	38-7529	Built-in trunk, concealed spare, fabric roof, blind quarter
7 Touring Sedan	38-7523	Built-in trunk, concealed spare, 2 auxiliary seats
7 Imperial Sedan	38-7533	Built-in trunk, concealed spare, imperial division, 2 auxiliary seats
7 Formal Sedan	38-7533F	Built-in trunk, concealed spare, imperial division, 2 auxiliary seats, leather blind quarter
7 Town Car	38-7553	Built-in trunk, concealed spare, 2 auxiliary seats, leather blind quarter, removable canopy for chaffeur's seat

Frame

	38-50	38-60	38-65	38-75 & 90
Wheelbase	124″	127″	132″	141″
Tread—Front	58″	58″	60½″	60½″
—Rear	59″	61″	62⅜″	62½″
Overall Length	201″	207⅝″	211⅜″	220⅝″
Commercial Cars				
Wheelbase	160⅜″	.....	160⅜″	161⅜″
Tread—Front	58″	.....	58″	60½″
—Rear	59″	.....	59″	62½″

The series 38-50 LaSalle frame is the same as the 37-50 frame except for a few minor changes such as relocated mounting holes, etc., and for the straightening out of the front end to a strictly horizontal position.

The 38-60 Cadillac frame has been changed considerably. It is longer and nearly 3 inches lower. The lowering has been accomplished by the use of a double drop frame with a deep kick-up over the rear axle and a raised front, as shown in Fig. 1. Box reinforcements extend from the X-member arms back to the cross member in front of the gasoline tank, as well as forward to the front cross member. The frame sidebars encircle the helical front springs as formerly.

The frame for series 38-65 is the same as the frame used for 38-75 and the 38-90 V-16, except for some dimensions. These frames have straight sidebars and box reinforcements extending from the front cross member to the X-member and from the X-member back to the cross member in front of the gasoline tank. (See Fig. 2.) The front end construction, with sidebars extending through the front cross member, is unchanged.

Commercial chassis are available for series 38-50, 65 and 75. Both 38-50 and 65 chassis use a 38-50 frame lengthened to provide a 160⅜ inch wheelbase. The 38-75 chassis uses a 38-75 frame lengthened to provide a 161⅜ inch wheelbase.

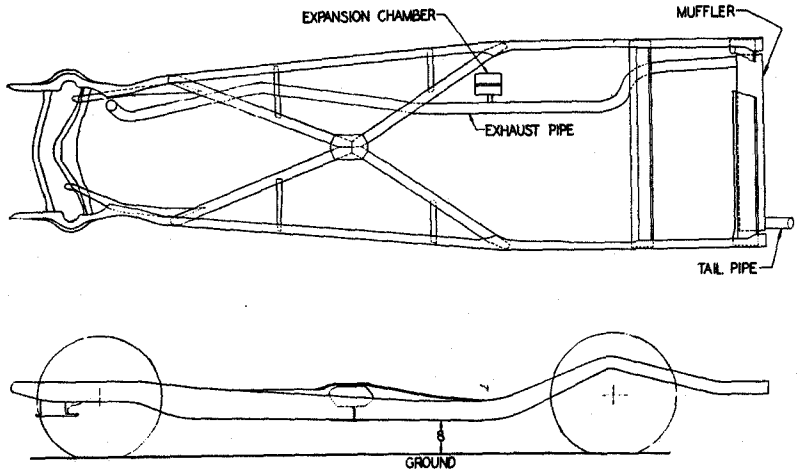


Fig. 1 (left). General arrangement of 38-60 frame and exhaust system

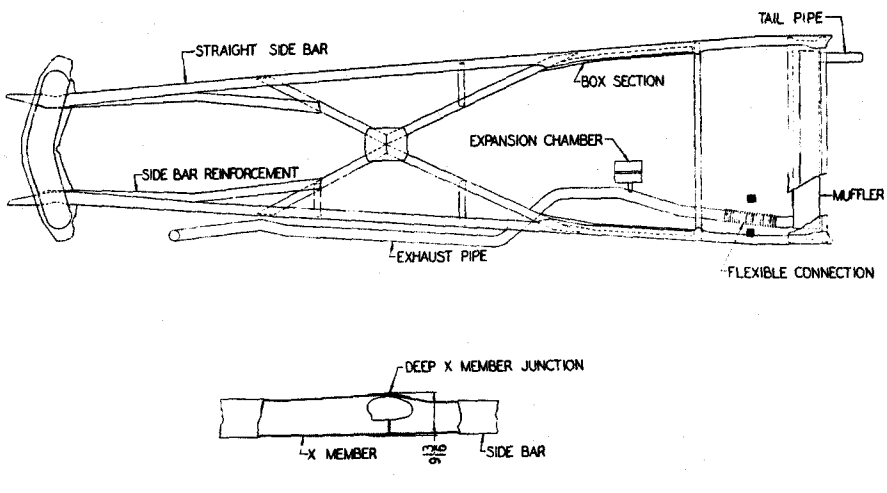


Fig. 2 (right). General arrangement of frame and exhaust system used on 38-65, 75 and 90

Front Wheel Suspension

	38-50 & 60	38-65	38-75 & 90
Caster	—¾° to 0°	—¼° to ¼°	—¼° to ¼°
Camber	¼° to 1°	0° to ½°	0° to ½°
Knuckle bolt inclination	4° 51'	5° 38'	5° 38'
Toe-in (in motion)	0 to 1/16"	0 to 1/16"	0 to 1/16"
(at rest)	1/32 to 3/32"	1/32" to 3/32"	1/32" to 3/32"

The front wheel suspension systems resemble closely the systems used on the corresponding previous series. The 38-50 and 60 systems are of similar construction to the 37-50 suspension. The systems employed on 38-65, 75 and 90 are identical with each other and are similar to that used on 37-75 cars.

Improved serviceability and quietness have been incorporated into the 38-50 and 60 suspension systems by three detail changes. Threaded bushings are used at the inner ends of the lower control arms, in place of the previous construction in which the threaded bearing was in the control arm itself. Lubricant seals of oil-resisting synthetic rubber are used at both ends of the lower control arms. The rubber front rebound cushions are softer than heretofore, to reduce shock on severe bumps.

The suspension system used on 38-65, 75 and 90 incorporates the threaded bushings just mentioned, as they were included in the 37-75 construction. The lubricant seals at the lower control arms are also a part of the suspension system on these larger cars.

Front wheel alignment factors are unchanged, except that the limits for caster on 38-50 and 60 are from zero to ¾ of a degree *reverse* caster when measured at curb weight, and on 38-65, 75 and 90 are from ¼ degree to ¼ degree *reverse* caster. Actually, when the cars are loaded and in motion, the caster angle approaches zero.

Adjustments and replacements for the front wheel suspension are performed in the same manner as for the corresponding previous series.

Rear Wheel Suspension

	38-50	38-60	38-65	38-75	38-90
Axle gear ratio	3.92	3.92	4.58	4.58	4.31
Axle lubrication:					
Lubricant required	— SAE 90 Hypoid—All Series —				
Quantity	5 pts.	5 pts.	6 pts.	6 pts.	6 pts.
Tread (rear)	59"	61"	62⅜"	62½"	62½"

Hypoid rear axles are used on all 38-series cars. The axle used on series 38-50 and 60 is the same as that used on 37-50, except for the spiral angle, which has been increased from 45 to 50°, and an improvement in pinion bearings. Two tapered roller bearings are used, one at each end of the pinion shaft.

The rear axle used on series 38-65, 75 and 90 is of the same general design as the 38-50 axle, except that it is larger in size and differs from the smaller axle in several construction details.

The axle gear ratios are given in the table above. The gear ratios are new on all series excepting the 38-50.

Any service on the differential gears or ring gear and pinion of 38-series axles must be handled by replacement of the complete differential carrier assembly. No disassembly or adjustment should be attempted in the service station. Removal and installation operations are performed in the same manner as for the 37-series axles.

Lubrication of the 38-series rear axles is the same as for the 37-series hypoid axles. SAE 90 Hypoid lubricant must be used throughout the year. The lubricant level must be inspected every 1,000 miles, and the differential case must be drained, flushed, and refilled with fresh Hypoid lubricant every 6,000 miles. Only Hypoid lubricants meeting Cadillac specifications can be used in these axles.

The rear wheel bearings have been moved outward on all 38-series axles, in order to reduce the overhang and decrease bearing and axle shaft loads. This change necessitates new design axle shafts and detail changes in wheel hubs and backing plates. Spring pads have also been moved outward on series 38-65, 75 and 90, which has resulted in reduced axle housing stress.

The propeller shafts on 38-series cars are slightly shorter than the corresponding 37-series shafts, and in addition the machining of the universal joint flanges has been changed to provide better balance. Accordingly, the 37 and 38-series shafts are not interchangeable. The propeller shafts are installed with the splined joint at the rear on all 38-series cars.

The rear springs of all 38-series cars are fitted with waxed liners such as are used on 37-50 and 60. With this arrangement, spring covers are not required, and lubricant should not be applied to the spring leaves in service.

Threaded spring bolts and bushings are used at the front end of 38-50 and 60 rear springs. Threaded "U" type shackles, similar to those used on 37-50, are used at the rear. Rubber bushings are used at the spring bolt and upper shackle bearing of 38-65, 75 and 90 rear springs. These shackles are of the double bar type with a threaded lower shackle bearing.

The use of double-acting hydraulic shock absorbers with end-to-end discharge is continued on all 38-series cars. The 38-50 and 60 shock absorbers, both front and rear, are unchanged from 37-50 practice. The 38-65 and 75 shock absorbers are unchanged from previous design except that new links are used, having rubber bushings similar to but larger than those used on 37-50. The 38-90 shock absorbers are the same as those used on 38-75. The manually-operated ride control used on 37-90 cars is no longer employed.

The cross link type of rear stabilizer as installed on 37-50 and 60 cars is used unchanged on 38-50. A cross link stabilizer of new design is used on 38-60, 65, 75 and 90 cars. This stabilizer

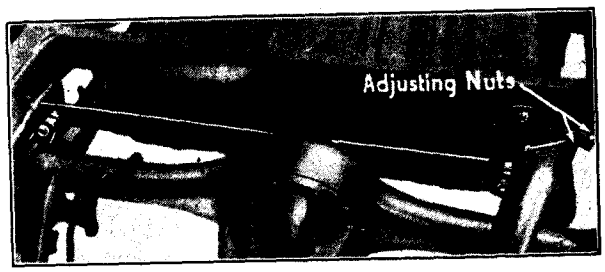


Fig. 3. Cross link type of rear stabilizer used on 38-60, 65, 75 and 90

is adjusted in much the same manner as the 38-50 stabilizer. To make the adjustment, back off the adjusting nuts shown in Fig. 3, load down the rear of the car until the stabilizer bar is parallel to the frame cross member *and* the rear springs are perfectly straight, then tighten the adjusting nuts securely.

Service operations on springs and shock absorbers are unchanged from previous practice.

Brakes

	38-50 & 60	38-65	38-75 & 90
Braking area	220 sq. in.	246 sq. in.	257.5 sq. in.
Brake Drums—			
Inside diameter	12″	12″	14″
Out-of-round, not over	.007″	.007″	.007″
Brake Lining Size—			
Length: Front primary	12 15/16″	12 15/16″	12¼″
Front secondary	12 15/16″	12 15/16″	15″
Rear primary	12 15/16″	12 15/16″	15″
Rear secondary	12 15/16″	12 15/16″	15″

Self-energizing hydraulic brakes with composite drums are used on all 38-series cars. The brakes on 38-50, 60 and 75 are continued without major change from the 37-series. On series 38-65, the rear brake drum width has been increased from 2 to 2½ inches, providing a total braking area of 246 square inches. Otherwise, the 38-65 brakes are unchanged.

	38-50 & 60	38-65	38-75 & 90
Brake Lining Size—			
Width: Front linings	2¼″	2¼″	2¼″
Rear linings	2″	2½″	2¼″
Thickness: Front & rear	3/16″	3/16″	¼″
Composition:			
Primary linings	Moulded	Moulded	Moulded
Secondary linings	"	"	"
Clearance between lining and drum	.010″	.010″	.010″

The 38-90 V-16 brakes are similar to the 38-75 except that ribbed brake drums are used to provide better cooling. The brake assister formerly used has been discontinued.

Service operations on the 38-series brakes are unchanged from the 37-series procedures. The dust seal used around the edges of the brake drums and backing plates on 37-series Cadillacs has been discontinued for 1938.

Engine

	38-50	38-60 & 65	38-75
Bore and stroke	3⅜ x 4½"	3½ x 4½"	3½ x 4½"
Piston displacement	322 cu. in.	346 cu. in.	346 cu. in.
Taxable H. P.	36.45	39.20	39.20
Compression ratio	6.25 to 1	6.25 to 1	6.70 to 1

V-8 Engines

The 38-series V-8 engines incorporate a number of refinements but are otherwise unchanged from the corresponding previous series. There have been no changes in engine sizes, but the power output of the 38-75 engine only has been increased by raising the compression ratio from 6.25 to 6.70. The 38-75 engine will therefore require the use of ethylized or other high octane fuel.

This change in compression ratio does not seriously affect parts stock requirements, as the higher ratio on 38-75 is secured by using the same cylinder head as used on 38-50 engines. The markings on production cylinder heads must be understood, however, to avoid confusion. They are as follows:

Right-hand cylinder heads on both 38-50 and 38-75 engines are marked *322-625 and 346-680, whereas left-hand cylinder heads on 38-50 are marked 322-625 and on 38-75 are marked 346-680. Cylinder heads supplied by the Parts Division, however, will be marked with both ratios regardless of whether they are right or left hand heads.

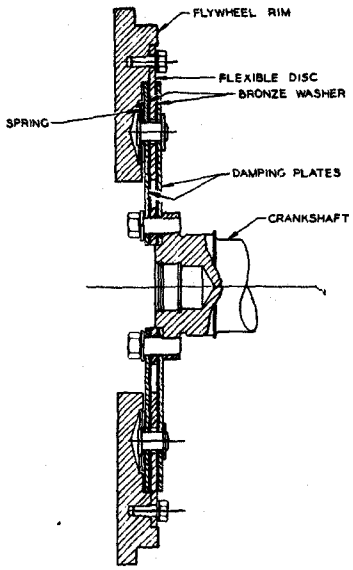


Fig. 4. "Damped bending" flywheel used on 38-60, 65 and 75 V-8 engines

An entirely new "damped bending" flywheel is used on 38-60, 65 and 75 Cadillac engines. This device eliminates crankshaft bending vibration just as a torsional vibration dampener eliminates torsional vibration.

The new flywheel, instead of being the usual rigid casting, has a cast iron rim attached to the crankshaft by a steel disc that permits a certain amount of bending. On both sides of the supporting disc are damping plates which press against it. (See Fig. 4.)

The flexible flywheel web on the new Cadillac design permits the rim to run in a true plane regardless of crankshaft deflection. As the crankshaft bends, the damping plates rub against the flexible web, absorbing energy and damping any bending motion of the crankshaft.

This type of flywheel requires no attention whatever in service.

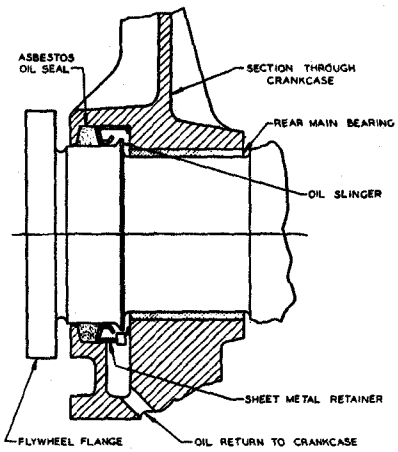


Fig. 5. Rear main bearing oil seal used on all 38-series engines

A positive rear main bearing oil seal (Fig. 5) supersedes the former seal. The new design consists of an asbestos composition packing, against which the crankshaft turns, which is held in place in the crankcase and bearing cap by sheet metal retainers. This feature cannot be installed on previous V-8 engines as changes in the crankcase and crankshaft are involved.

Several detail changes have been made in the engine oiling system. The use of an oil filter for the V-8 hydraulic valve silencer supply has proved, on the 37-series engines, to have slight advantage; the oil filter has therefore been discontinued on 38-series V-8's. The oil pan drain plug has been moved to the left side to improve accessibility and increase road clearance. A flexible oil level indicator plunger has been made necessary by the new front opening hood.

Other changes in the V-8 engines include larger generator drive pulleys to decrease belt flexing, a more compact air cleaner and silencer assembly, the use of thrust type distributor head terminals, and rearranged high tension wiring.

*Piston displacement and compression ratio. (346-680 will be changed to 346-670)

Carter carburetors are used on LaSalle 38-50 engines and Stromberg carburetors on the 38-series Cadillac V-8 engines. These carburetors are the same as those used on 37-series, with the following improvements:

On the Carter carburetor, more accurate calibration of the fuel-air ratio, accomplished by nozzle changes, improves part throttle operation. The action when cold is aided by a slower decrease in choking as the engine warms up.

A change has been made in the anti-percolator adjustment on Carter carburetors. The marks on the jets should be .015" above the tops of the housings instead of flush with them as previously required.

On the Stromberg carburetor, a vacuum-actuated economizer is employed in place of the former throttle pump. This device enriches the mixture whenever more power is required, even though the throttle is not fully open. Whenever the engine is pulling under load, the resulting low vacuum in the intake manifold acts directly to supply the added fuel required.

There is no change in service or adjustments of the Stromberg carburetor.

The three point rubber mounted engine supports previously used are continued for the 38-series V-8 engines. The transmission extension support has been moved rearward on 38-60, 65 and 75 to accommodate the new frames and provide interchangeability between the various Cadillac series.

Two large flat washers ⅛-inch thick are placed between the top plate and the rubber cushion at 38-65 and 75 rear support. Series 38-50 and 60 continue the use of a single ⅛-inch washer at this point.

V-16 Engine

	38-90
Angle between cylinder blocks	135°
Cylinder firing interval	45°
Bore and stroke	3¼ x 3¼"
Piston displacement	431 cu. in.
Compression ratio	7.0 to 1
Horsepower:	
Taxable	67.6
Developed at 3600 R. P. M.	185
Crankshaft and Main Bearings:	
Counterweights	8, integral
Damped flywheel	No
Harmonic balancer	Yes
Main bearings, diameter	2½"
Main bearings, number	9
Main bearings, type	Shell
Connecting Rods:	
Arrangement on crankpin	Side-by-side
Bearing diameter	2"
Bearing type	Shell
Length of rods	6⅜"
Pistons:	
Design	T-slot
Material	Anodized Aluminum Alloy
Compression rings, number	2
Compression rings, width	⅛", 3/32"
Oil rings, number	1
Oil rings, width	1/16"
Piston pin	Locked in rod
Timing Chain:	
Adjustment	None
Length	23¼"
Links, number	62
Pitch	⅜"
Width	1¼"
Valves:	
Arrangement	L-head
Seat angle	45°
Seat diameter, intake	1⅜"
Seat diameter, exhaust	1¼"
Tappet clearance	Automatic
Engine Lubrication:	
Oil pump	Helical Gear
Crankcase oil capacity	11 qts.

Ignition:

Coils, Delco-Remy No.	553 E
Distributor	
Contact point gap	.0125-.0175"
Contact arm spring, tension	19-23 oz.
Firing order	1,4,9,12,3,16,11,8,15,14,7,6,13,2,5,10
Spark Advances (degrees on flywheel):	
Manual advance on distributors	20°
Automatic advance (maximum)	28°
Spark Plugs:	
A. C. type number	45
Gap	.025-.030"
Thread	14mm.

Carburetion:

Carburetors (two used):	
Make	Carter
Size	1⅛"
Type	Dual downdraft, plain tube

Engine Number Location:

On the upper rear left hand corner of the left hand cylinder block, parallel with the cylinder head.

An entirely new V-16 engine has been designed for the 38-90 series cars, which will supersede both the 37-85 and 37-90.

The outstanding new feature of the 38-90 engine is the *en bloc* design, with a single casting of grey iron for cylinders and crankcase, and an angle of 135° between the cylinder banks. This arrangement results in an engine that is more compact, more durable, and more efficient than previous V-12 and V-16 engines.

Although the 38-90 engine develops about the same horsepower as the 37-90, the stroke is shorter and the piston displacement is only 431 cubic inches. The overall length and the weight of the complete power plant are less than those of the 37-85 as well as the 37-90. Performance is improved because the 38-90 complete cars weigh about 1000 pounds less than corresponding 37-90 cars.

The 135° angle between the cylinder banks permits uniformly spaced power impulses every 45° to provide maximum smoothness of operation. This wide angle permits an L-head valve arrangement and convenient location of carburetors, distributors, and other engine accessories.

The crankcase and cylinder block construction follows, in general, the principles used in the V-8 engines. The crankcase casting has seven ribbed bulkheads which add to rigidity and which, with the front and rear walls, support the nine main bearings. Bearing caps are of cast iron. Removable shell type bearings of steel-backed babbitt are used.

The cylinder heads are of cast iron, in accordance with the usual Cadillac practice. The combustion chambers are machined all over to avoid compression pressure variations between cylinders. The standard compression ratio is 7.0 to 1, which necessitates the use of ethylized or other high octane fuel.

The design of the crankshaft assures maximum rigidity and smoothness. Dynamic balance is achieved by the use of eight counterweights forged integral with the shaft. Nine main bearings resist bending forces while large bearing journals with a 5/8-inch overlap provide torsional rigidity. (See Fig. 7.)

A rubber torsional vibration dampener is included in the belt pulley assembly at the front of the engine. It is similar in principle to the design previously used, but is more compact. A "damped bending" flywheel, as used on Cadillac V-8's, is not required, due to the lighter power impulses and the greater resistance to bending of the nine main bearings.

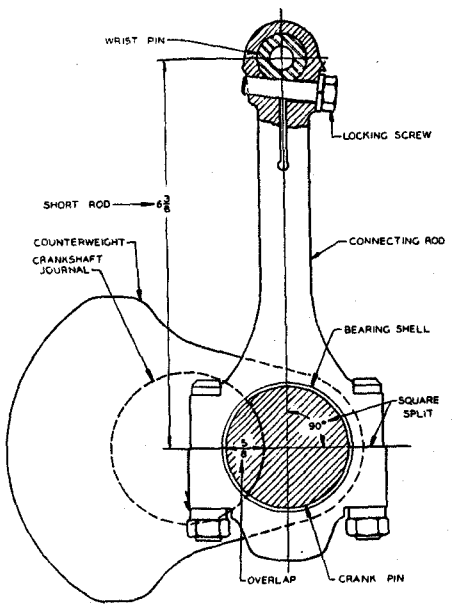


Fig. 7. The 38-90 crankpin bearings overlap the crankshaft journals

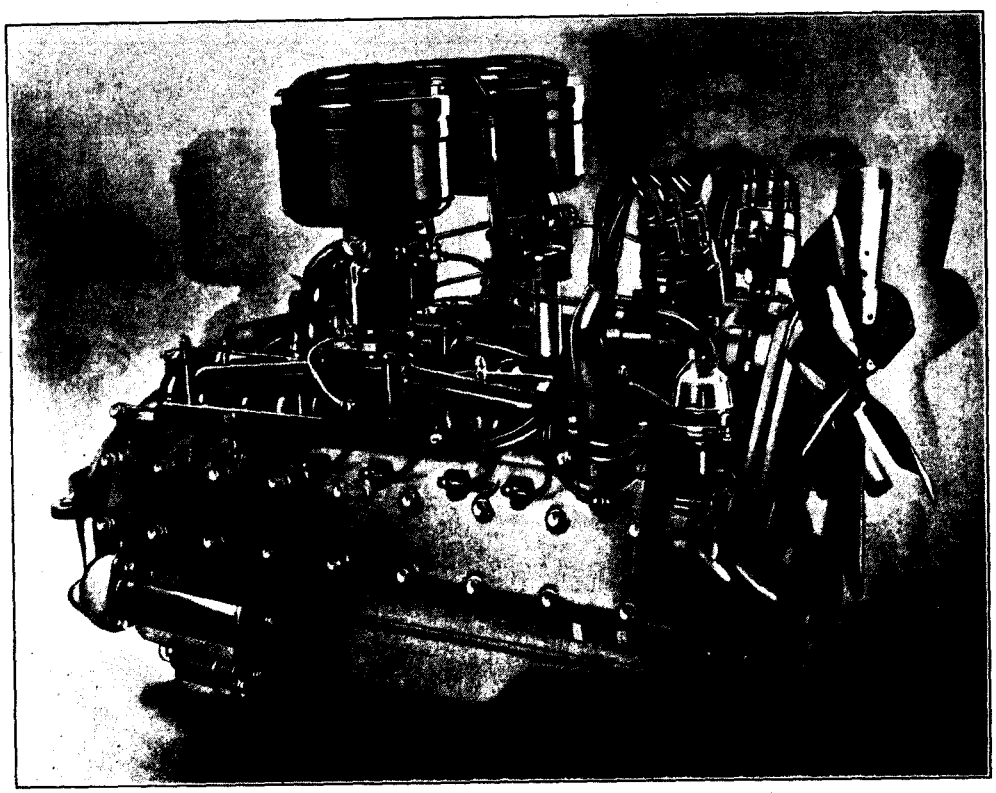


Fig. 6. The 38-90 V-16 engine has a single casting for cylinders and crankcase, with a 135° angle between the cylinder banks

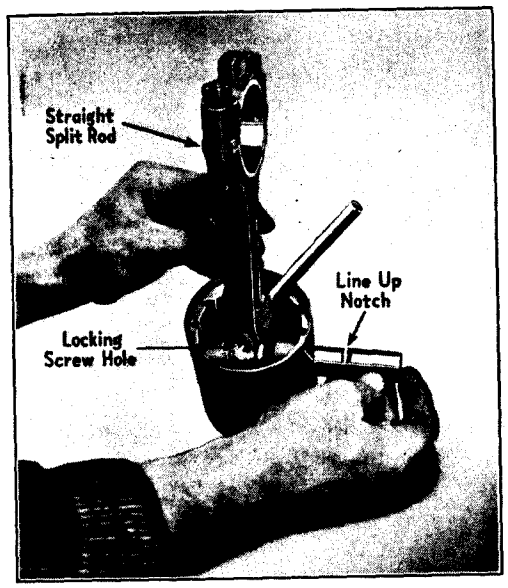


Fig. 8. Assembly of 38-90 piston and connecting rod

Two connecting rods are carried side-by-side on each crankpin. Because of the short stroke, the rods need to be only 6⅜ inches in length. Use of 2-inch crankpins permits the removal of piston and rod assemblies from above without the necessity of an angle-split rod bearing.

The piston and connecting rod assembly is a departure in one respect from previous Cadillac practice. The piston pin is held in the rod by a locking screw and rotates in the piston. With this construction, shown in Fig. 8, snap rings for the pins are not required, nor is it necessary to have a drilled oil passage in the connecting rod to lubricate the pin bushing.

The pistons are of the familiar T-slot design and are made of aluminum alloy with anodized finish. Two compression rings and one oil ring are used. Two grooves are broached the full length of the piston pin bearing to collect oil from the cylinder wall and distribute it along the pin.

The valve mechanism in the V-16 engine is basically the same as the V-8 design. The camshaft is mounted on five bearings in alternate bulkheads of the crankcase. It is located in the center of the vee, directly above the crankshaft, and is driven by a non-adjustable silent chain at the front of the engine. An idler chain adjusting sprocket, as used on 37-90, is unnecessary.

The cams operate valve lifters which include hydraulic valve silencers of the same design as used in V-8 engines. (See Fig. 9.) The valves themselves are of the same materials as used in V-8 valves but are smaller, with diameters of 1½ and 1⅜ inches for intake and exhaust, respectively. Single valve springs are employed. The entire mechanism is enclosed by two removable covers placed across the top of the engine vee.

With the exception of piston pin removal, service operations are unchanged from previous practice. Bearing clearance limits are the same as for V-8 bearings, and the replacement operations are the same. Piston fitting is performed in the same manner and with the same feeler gauges as used for 37-85 and 90. Cylinder reconditioning is performed in accordance with the instructions for the V-8 en-block cylinders. Valve service operations are the same as for V-8, except that it is necessary to remove the valves before the valve lifters can be removed.

Piston pins are removed by taking out the locking screw, then spreading the split end of the connecting rod with Tool No. J-1167, and tapping the pin out of piston and rod with a brass drift. To reinstall a piston pin, first spread the rod with Tool No. J-1167, then assemble pin in piston and rod in the correct position, as shown in Fig. 8. Tap the pin into place and turn the locking screw part way in before removing the spreading tool.

Oiling System—The engine oiling system is similar to that of the V-8 engines, but of much greater capacity. Eleven quarts of oil are carried in the pressed steel oil pan.

Oil is drawn from the pan through a floating intake to the gear-type oil pump which is attached to the crankcase at the rear of the engine. A piston type oil pressure regulator is incorporated in the pump body. The pump is driven by a vertical shaft which has at its upper end a gear meshing with a gear integral with the camshaft. (See Fig. 9).

From the pump, oil passes to a header that runs full length of the crankcase. Drilled passages in the bulkheads connect the header with the main and camshaft bearings, and drilled passages in the crankshaft carry oil to the connecting rod bearings. The rear main bearing oil seal is of the same type as used in the 38-series V-8 engines. (See Fig. 5, Page 9.)

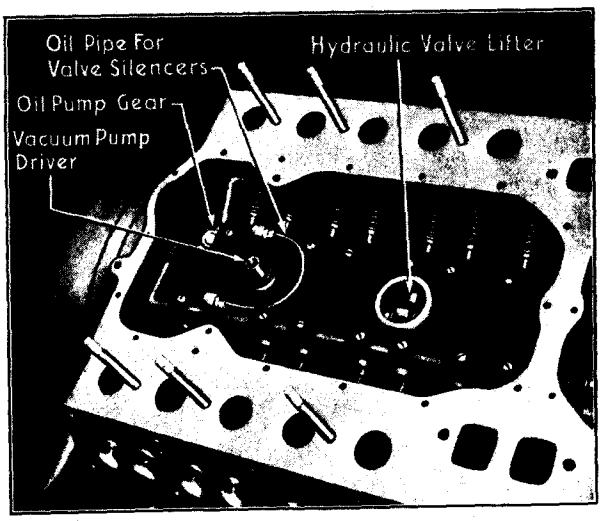


Fig. 9. Hydraulic valve lifters are used in the 38-90 engine

The oil pump drive shaft bearing, the two distributor drive shafts, and their eccentrics for driving the two fuel pumps are lubricated directly by passages connected with the main bearing supply. The timing chain and sprocket are lubricated by oil which has passed through the front camshaft bearing.

A pipe leading from the main oil header carries oil to two small headers along both sides of the camshaft. Oil from these headers passes to the hydraulic valve silencers, lubricating them and providing the pressure necessary for the automatic valve adjusting action.

The oil filler is in the center of the front valve chamber cover just behind the generator, and thus is accessible from either side of the engine. A float type oil level indicator, reading F (full), ½, and E (empty) is located at the rear of the engine vee.

Engine oil recommendations are the same as for the V-8 engine. Oil should be changed every 2,000 miles, and at this time the carburetor air cleaners and the crankcase ventilating intake should be cleaned.

Crankcase Ventilation—The crankcase ventilating system is of the suction type, similar to that used on the V-8 engines. The filter-protected engine oil filler provides the main air inlet. A pipe for ventilating air also extends from each air cleaner—one to the front valve chamber, the other to the rear. Still another pipe extends upward from the crankcase to the line leading from vacuum pump to the intake manifolds.

At low speed or part throttle operation, air is drawn into the crankcase through the oil filler, and into the valve chambers through the air cleaner pipes. Cored holes in the crankcase bulkheads and drilled holes in the valve chamber walls permit free circulation of air. After absorbing water and fuel vapors, the air is drawn up through the vacuum line and into the intake manifolds.

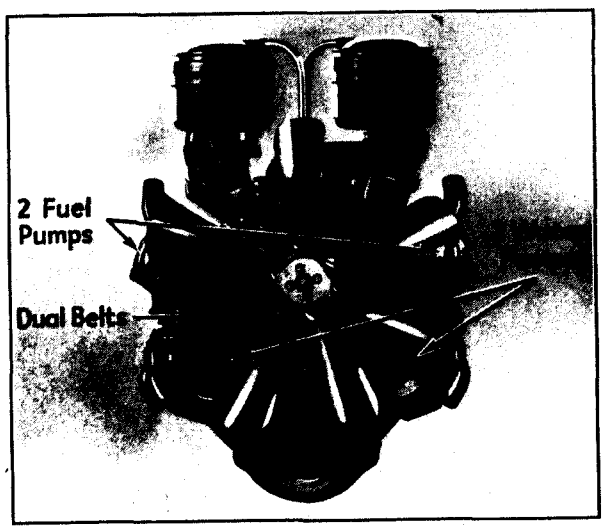


Fig. 10. A double belt arrangement drives fan, generator and water pumps on the 38-90 engine

At high speeds, the direction of air circulation is partly reversed. The manifold vacuum is decreased, but the rush of air into the carburetors draws the fumes from crankcase and valve chambers up through the pipes that lead to the air cleaners.

Cooling System—Two independent water circulating systems are used, one for each bank of cylinders. The radiator bottom tank has two outlets, each of which is connected to one of the two centrifugal type water pumps mounted on the sides of the engine at the front.

The water pumps have several new features. The impellers are a press fit on the shafts. The impeller hubs bear against carbon blocks. No lubrication is required by the pumps.

From each pump, water is forced to the rear through a tube that extends the full length of the cylinder, and that sprays water around the valve chambers and at the same time assures correct distribution of fluid throughout the blocks. After circulating in the full-length water jackets, the water passes upward through regulated openings into the cylinder heads and then forward to the outlets.

The cooling system is drained at three points, at the bottom of each cylinder bank, and at the lower right side of the radiator core.

Fan, Water Pump and Generator Drive—Two parallel vee belts driven by double pulleys on the crankshaft encircle the water pump pulleys at the sides and the fan pulleys at the top. A novel friction-type generator drive mechanism permits the dual belts to drive the fan at slightly less than engine speed while the generator is being driven at 1.95 times engine speed.

The dual belts drive a shaft which is supported by a double row ball bearing. The fan is mounted directly to the front of this shaft, while at the rear the shaft carries a drum. The inside of the drum carries a rubber driving ring against which is pressed the smaller driving wheel for the generator.

The entire mechanism is supported on a bracket attached to the front of the engine by two studs. The hole for one of these studs is slotted to permit adjustment of the fan belt tension. The generator end frame is similarly attached to the fan bracket, and has a slotted hole to permit adjustment of the friction between the rubber ring and the driving wheel.

The dual belts are adjusted by tightening the fan bracket until there is no free movement or looseness in the belts, yet without straining the belts. This adjustment specification applies to all 38-series belts, and is the same for both new and used belts.

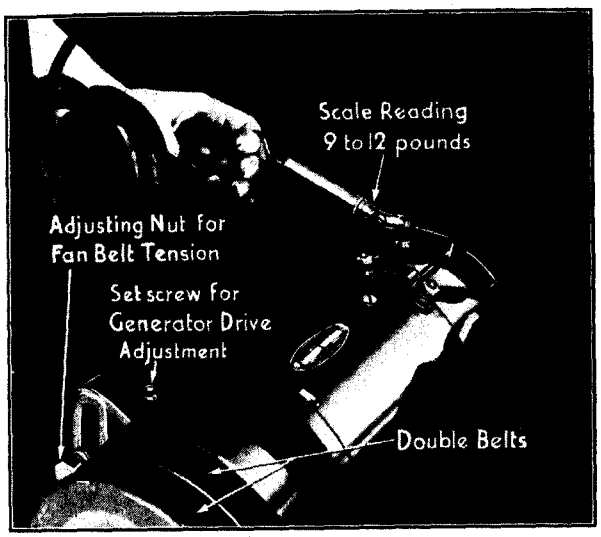


Fig. 11. The correct generator drive adjustment on 38-90 is determined with a spring scale as shown.

If it is necessary to replace one of the dual belts, both belts must be replaced, and the new belts that are installed must be a matched pair secured from the factory Parts Division. Only belts properly matched for length at the factory will operate satisfactorily in the V-16 engine.

The friction drive for the generator seldom requires attention in service, but when readjustment does become necessary, it must be made accurately with a spring scale. Before attempting this adjustment, make certain that the fan belt is correctly adjusted, and then proceed in the following manner:

Attach the spring scale to the rim of the ventilating blower at the rear of the generator and pull it out tangent to the rim. The adjustment is correct when a pull of 9 to 12 pounds is required to slip the generator drive. Check this adjustment at several points on the circumference of the driving drum to guard against errors due to possible eccentricity.

The tension of the wheel against the drum is controlled by the set screw shown in Fig. 11. To increase the tension, merely turn down the set screw. To decrease the tension, the set screw must be backed off and the mounting bracket tapped to force it downward.

Re-check the tension at several different positions after each readjustment.

Ignition System—The ignition system is new, yet similar to the 37-90 system. The ignition circuit for each bank of cylinders is entirely separate: two coils and two condensers are used, and two separate distributor units direct the high tension current to the proper spark plugs.

The breaker mechanisms for *both* of these circuits are, however, located in the same distributor housing—the left-hand one. The two breaker arms, although separate electrically, operate on the same eight-lobed cam, as did the 37-90 breaker arms. The right-hand distributor unit serves only to direct the current to the spark plugs in the right-hand block. (See Fig. 12).

The ignition coils are mounted on a bracket attached to the radiator upper tank, and held together in a die-cast base into which the ignition lock cable passes. The two distributors are mounted at the front of the engine and are driven by a single gear from the camshaft. As viewed from above, the left hand distributor rotates clockwise and the right-hand distributor counter-clockwise. The two condensers are mounted on the outside of the left hand distributor.

The high tension ignition wiring from distributors to spark plugs is concealed and protected by metal conduits. The distributor head terminals are of the thrust type. The 14 mm. spark plugs (A. C. Type 45) require a setting of from .025 to .030 inches, the same as the V-8 plugs. The contact point gap is from .0125 to .0175 inches.

The cylinders are numbered from the front by the usual Cadillac method, with the left front cylinder designated No. 1, the right front, No. 2, etc. The firing order is 1, 4, 9, 12, 3, 16, 11, 8, 15, 14, 7, 6, 13, 2, 5, 10. Ignition timing marks appear on the harmonic balancer at the front of the engine.

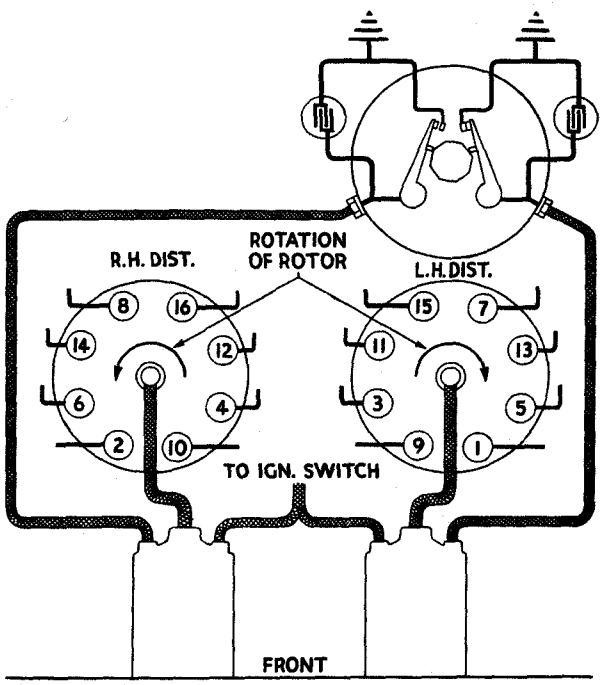


Fig. 12. Ignition circuit diagram, 38-90 engine.

Carburetion and Manifolding.—Gasoline is drawn forward from the 26 gallon tank through a single pipe placed in a cool position outside of the right hand frame sidebar. This pipe branches near the front of the engine, with one lead passing directly to the right hand fuel pump and the other one crossing in front of the frame front cross-member and then back to the left hand fuel pump.

The two fuel pumps are of the familiar link-driven flexible diaphragm type. The link drives project inward and engage push rods operated by eccentrics on the distributor drive shafts, as shown in Fig. 13. Gasoline filters are an integral part of the pumps.

A pipe leads from the right hand fuel pump to the right hand carburetor, and from the left hand pump to the left hand carburetor, but these lines are interconnected so that either pump may supply both carburetors.

Two heavy duty oil bath air cleaners of cylindrical design are each mounted directly above the corresponding carburetor. Two 1⅛" Carter carburetors are employed. The carburetors are of dual downdraft design, with one carburetor barrel serving the four inside cylinders, while the other serves the four end cylinders. (See Fig. 14.)

These carburetors are of the same design and construction as the Carter carburetors used on the V-8 engines and are adjusted and serviced in exactly the same fashion. Synchronizing the action of the two carburetors can be accomplished in the same manner as for 37-90 carburetors, either by the use of the mercury column gauge or by running each bank of cylinders separately. A trunnion with closely threaded adjusting nuts is incorporated in each throttle rod near the carburetor to permit accurate synchronization.

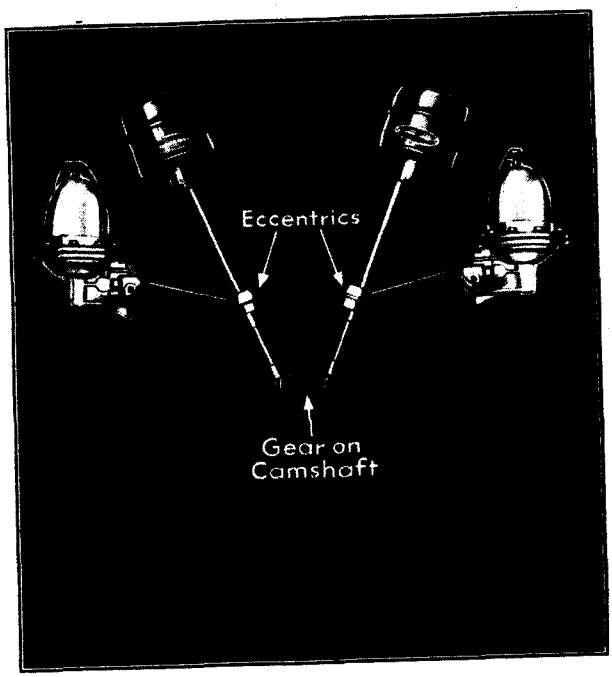


Fig. 13. Phantom view of distributor and fuel pump drive mechanism on 38-90 engine

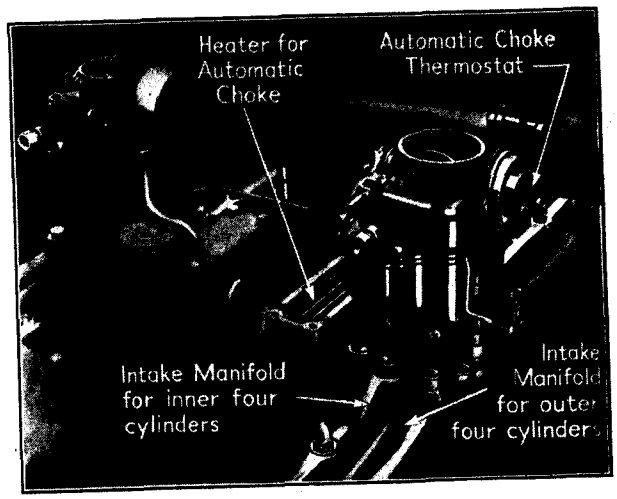


Fig. 14. Carburetors and manifolds used on the 38-90 engine

The fuel mixture passes down from each carburetor to an exhaust heated chamber, and then to the four passages of the dual intake manifolds, which are so arranged that no two successively firing cylinders draw from the same manifold passage.

All exhaust ports are single. The two center ports of each cylinder bank are connected to the heating passages for the intake manifolds. The two exhaust pipes discharge into a cross pipe just behind the carburetors and this pipe conducts the exhaust gases to the left side of the engine and downward to the rear.

A vacuum pump to insure effective windshield wiper operation at all speeds and throttle openings is mounted above the valve chamber cover at the rear of the engine. It is similar to the pump used on 37-90.

Engine Supports.—The 38-90 V-16 engine is supported at five points by the same type of rubber mountings as are used for the V-8 engines. There are two supports at the front corners, two intermediate supports, and a rear support at the transmission extension. The rear support has $\frac{1}{16}$-inch steel shims between the top plate and the transmission extension, in place of the ⅛-inch steel washer used on V-8 engines.

Adjustment of the engine supports consists merely of tightening all bolts to a snug fit, except at the rear support where adjustment is made by varying the number of shims.

Clutch

	38-50	38-60, 65, 75	38-90
Clutch Facing Diam.—			
Inside	6½"	6½"	7"
Outside	10¼"	11"	11½"
Facing area, total	107 sq. in.	124 sq. in.	132 sq. in.
Free travel of pedal	⅞-1⅛"	⅞-1⅛"	⅞-1⅛"
Dampening springs, No.	8	8	None
Pressure springs, No.	9	9	12
Release levers, No.	3	3	6

The single plate, semi-centrifugal type of clutch used on the 37-series V-8's, is continued with minor changes on the 38-series V-8 cars. A larger clutch of somewhat similar design is used on the 38-90 V-16.

The 38-50 LaSalle clutch, with a 10½ inch driven disc and 8 dampening springs, is exactly the same as the 37-50 clutch.

The clutch used on 38-60, 65 and 75 is the same as that used on 37-series V-8 Cadillacs, except that 8 heavier vibration dampening springs are used in place of the former 10. The driven disc diameter remains unchanged at 11 inches.

The 38-90 V-16 clutch is similar in design to the V-8 clutch, but it is larger in size and has several detail changes. The pressure plate assembly carries 12 pressure springs and 6 release levers which are pivoted on needle bearings.

The single driven disc is 11½ inches in diameter, and carries a total facing area of 132 square inches. This disc is not fitted with dampening springs as the smooth flow of power from the V-16 engine makes them unnecessary.

Service operations on the V-8 clutch are exactly the same as for the 37-series V-8 clutch. Service operations on the V-16 clutch are also very similar, so much so that the tools used for servicing the 37-series V-8 clutches can be used for all 38-series clutches.

Transmission

Gear Ratio:	
Low speed	2.39 to 1
Second speed	1.53 to 1
High speed	1 to 1
Reverse speed	2.39 to 1
Lubricant capacity	2½ pts. (lbs.)

The outstanding new transmission feature, which is employed on all 38-series cars, is the new location of the control lever under the steering wheel. Aside from changes in the shifting mechanism necessitated by this arrangement, the transmission itself is changed only in minor details from the transmission used on 37-series V-8's.

The control lever is mounted in a housing on the steering column so that the knob is just below and to the right of the steering wheel rim. The shifting positions are shown in Fig. 15. Within the housing the lever is pivoted at the left of the steering column. Interference with the column is avoided by the use of the construction shown in Fig. 16.

Two concentric torsion shafts extend from the control lever pivot down the left side of the steering column. Below the floorboards, each of the two shafts carries a lever from which a rod extends to the transmission case. (Fig. 15.)

Two short shafts extend through the transmission case—on their outer ends they carry levers

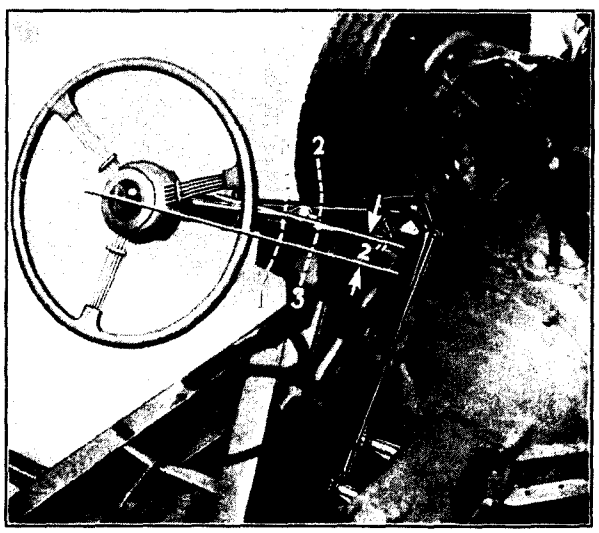


Fig. 15. Transmission shifting mechanism, typical of all 38-series

to which the rods from the control shafts are attached; while on the inner end a shoe on an inner lever contacts the high and intermediate shifter disc, and the shoe on the other lever shifts the low and reverse sliding gear.

Inasmuch as shifter shafts are not employed with this construction, the shifter locking balls operate against notched quadrants on the inner shifting levers as shown in Fig. 17. The locking ball pin and spring are carried in a drilled passage in the transmission case; the ball for the low and reverse lever is carried at one end of the spring and the ball for the high and intermediate lever at the other.

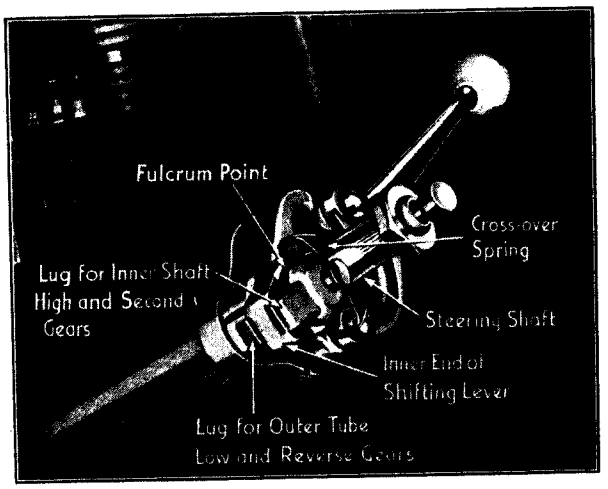


Fig. 16. Transmission control lever pivot and cross-over mechanism (all 38-series)

Operation of the transmission is virtually unchanged. The control lever knob is lifted and moved rearward to engage low gear or forward to engage reverse; similarly, it is depressed and moved forward or rearward to engage second and high gears respectively.

Lifting the knob lowers the inner end of the pivot (Fig. 16) so that the slot in the underside engages the lug for the outer torsion shaft, from which the linkage leads to the low and reverse shifter gear. Depressing the knob raises the pivot so that the upper slot engages the lug for the inner shaft, which connects with the high and intermediate coupling.

The same transmission gear case is used on all 38-series cars including the 38-90 V-16. The 38-50 LaSalle uses one length of transmission mainshaft and extension housing, while a second length is used on all Cadillac series. All transmission parts are, therefore, completely interchangeable within the 38-series except the mainshaft and extension housing.

Minor changes have been made in the transmission to increase its load carrying capacity. Among these are the use of new aluminum alloy synchronizing drums, a $\frac{1}{16}$-inch increase in countershaft diameter, requiring 28 rather than 26 needle bearings at each end of the shaft, and an increase of $\frac{5}{32}$-inch in the clutch connection diameter.

Service Operations.—Removal and disassembly procedures for the shifting levers and mechanism will be apparent from inspection. Reassembly operations, will, however, require the following precautions:

Reassemble the mechanism in order from the lever at the steering wheel down to the transmission.

The lever at the lower end of the inner torsion shaft is splined so that it can be installed in two possible positions which are about 10 degrees apart. Install this lever in the upper position on 38-75 and 90, and in the lower position on 38-50, 60 and 65. This will avoid interference with the steering column.

The levers at the outer ends of the transmission shafts also can be installed in two positions. Install them in the upper positions on all series. Make sure both levers are in neutral when installing the rods that connect with the torsion shafts at the steering column.

When installing these rods, adjust the rod ends so that the neutral position of the control lever knob is approximately 2 inches above the steering wheel center line, as shown in Fig. 15. Adjust the rod lengths carefully so that the lugs for the inner and outer torsion rods (Fig. 16) are exactly in line in the neutral position; otherwise, it will be impossible to cross over from low and reverse to high and intermediate.

Removal and installation of the complete transmission is the same as for the 37-series V-8's, after the shifting rods have been disconnected. The levers must also be removed on 38-60. It is not necessary to disturb the floor or toe-boards on any 38-series cars.

Disassembly and reassembly follow the same general procedures, except that there are no shifter shafts to remove, and the inner shifting levers and quadrants and the lock balls, pin and spring are removed after the gears have been taken out of the case.

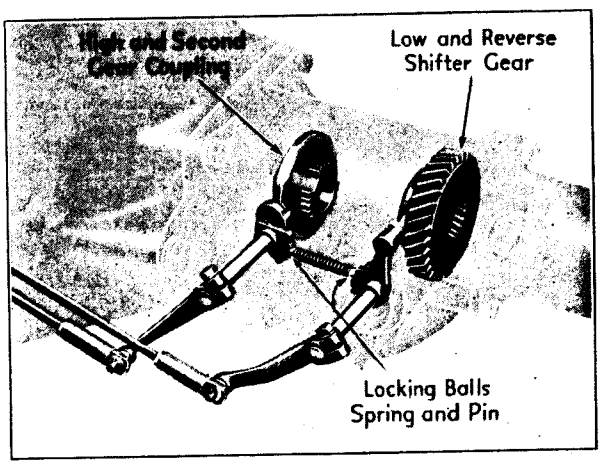


Fig. 17. Phantom view of gear shifting mechanism in transmission (all 38-series)

Fuel Tank and Exhaust System

	38-50 & 60	38-65, 75 & 90
Fuel tank capacity	22 gal.	26 gal.

The gasoline tank and lines on the 38-series V-8 cars are essentially the same as they were on the corresponding 37-series cars. The 38-90 gasoline lines are described in detail on page 15, under V-16 carburetion.

The 38-50 LaSalle exhaust system has only minor changes, the most noticeable of which is the elimination of the former tail pipe spreader, which has been discontinued on all 38-series cars.

All 38-series Cadillac cars have the muffler placed transversely across the chassis just behind the gasoline tank, as indicated in Figs. 1 and 2, page 6. This design is necessary because with the lowered frames, conventionally placed mufflers would have insufficient road clearance.

In addition, an expansion chamber is attached to the exhaust pipe just ahead of the muffler.

The 38-90 uses a single muffler and exhaust pipe similar to the 38-75 system. The two V-16 exhaust manifolds discharge into a cross pipe which connects with the single exhaust pipe leading down along the left side of the frame.

Steering

The double-tooth roller steering gears and the steering systems used on 37-series have been continued on the 38-series cars with only minor changes.

The 38-50 and 60 steering gears are mounted inside the frame sidebar and are connected to the intermediate steering arm with the familiar cross-mounted drag link.

The steering gear housings for series 38-65, 75 and 90 have been modified to suit frame changes, while their lengthwise-mounted drag links have been modified to suit new engine locations. The 38-65 gear is mounted inside of the frame sidebar in the same manner as the 37-65 gear. The 38-75 and 38-90 V-16 gear resembles the 37-75 gear, as it is mounted outside the frame sidebar with the roller shaft extending inward, and is operated through two universal joints.

Steering gear adjustments are all familiar. The 38-50 and 60 gears are adjusted the same as the 37-50 gear; the 38-65 the same as the 37-65; and the 38-75 and 38-90 gear the same as the 37-75. Adjustments of steering connections are the same as for the corresponding 37-series.

Wheels, Rims and Tires

	38-50	38-60	38-65	38-75 & 90
Rims—				
Diameter	16″	16″	16″	16″
Width	4½″	4½″	5″	5″
Tires—				
Size	7.00 x 16″	7.00 x 16″	7.50 x 16″	7.50 x 16″
No. plys	4	4	4	6
*Inflation pressure	26 lbs.	28 lbs.	28 lbs.	32 lbs.

The wheels, tire and rim sizes, and tire inflation pressures are the same on 38-series cars as on the corresponding 37-series, except for the 38-90 V-16, which has the same size wheel equipment as the 38-75. The 38-series wheels are, however, of a different make and consequently they are not interchangeable with the 37-series wheels.

Wheel discs with integral hub caps are accessories for all 38-series except 38-90, on which they are standard. Wheel trim rings are accessories for cars not fitted with wheel discs. Removal of wheel discs requires the same prying tool as used on 37-series.

New drum type metal tire covers are used with fenderwell spare wheels. These covers are hinged to the fender at the front and locked down at the rear. As the cover itself holds the wheel in the well, the spare wheel may be lifted out as soon as the cover is swung forward out of the way.

*Inflation pressures, all series commercial chassis: 32 lbs. front, 38 lbs. rear.

Chassis Sheet Metal

The 38-series chassis sheet metal parts (hood, radiator shell, fenders, running boards, and splash pans) are entirely new in appearance. Furthermore, important structural changes have been made in these parts at the front end of the car.

An entirely new type of hood which opens from the front is used on all 38-series. To open the hood, the radiator ornament must be tilted back to release the first catch, after which the hood can be lifted just high enough to permit reaching in and releasing the safety catch. (Fig. 18.) The hood can then be lifted easily, as springs are incorporated in the hinges at the rear of the hood to raise it and hold it in the correct position.

The hood side panels can be removed easily to provide better access to the engine. Each panel is held in place by two bolts at the upper corners and by clips along the lower edge. To remove a panel, it is necessary only to loosen these two bolts a few turns and lift the panel out from the clips.

Hood re-alignment is performed in the same manner as on 37-series cars. Lateral alignment is secured by shifting the front fender and radiator shell assembly, while vertical alignment is secured by shimming the radiator core.

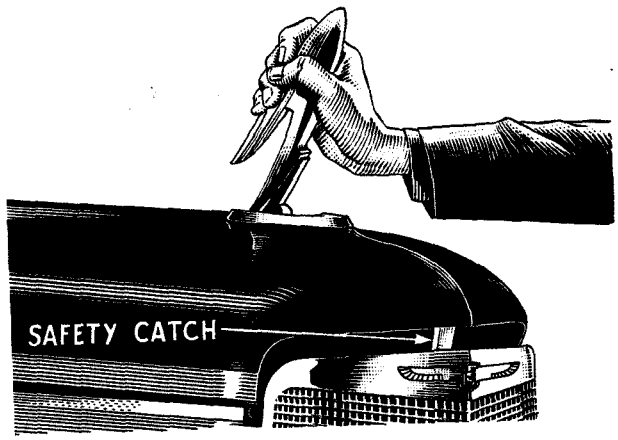


Fig. 18. The safety catch must be unlatched after the first catch is released by tilting back the ornament

The front and rear fenders, running boards, and splash pans are constructed so that they can be serviced individually, the same as on the 37-series. Removal of these parts is accomplished by removing the various nuts and bolts which fasten the sheet metal together at the joining edges or supporting brackets.

Chassis Electrical System

	38-50 & 60	38-65	38-75	38-90
BATTERY—				
Delco Type No.	17 KIW	17 KIW	17 DW	21 DW
Capacity—Ampere Hours	110	110	130	164
Charging Rate—Start	10 amps.	10 amps.	10 amps.	10 amps.
Finish	8 amps.	8 amps.	8 amps.	8 amps.
Plates, No. of	17	17	17	21
Terminal grounded	Positive	Positive	Positive	Positive
GENERATOR—				
Delco-Remy Type No.	1101051	1101054	1102652	1102651
Charging rate, maximum	30 amps.	30 amps.	26 amps.	26 amps.
Type of regulation	Voltage	Voltage	Current & Volt.	Current & Volt.
Type of drive	Belt	Belt	Belt	Friction Drive
Drive Ratio	1.96	1.86	1.86	1.95
STARTING MOTOR—				
Delco-Remy Type No.	727-V	727-V	727-V	000714
Lock torque in foot-pounds	16	16	16	12
Lock amperage	600	600	600	475
Lock voltage	3.0	3.0	3.0	3.63
Number of brushes	4	4	4	6
Ratio between armature and flywheel	17 to 1	17 to 1	17 to 1	17 to 1

The electrical systems of the 38-series cars have been changed only in minor details from the 37-series systems.

The batteries are of the same design as formerly, and are of the same sizes as the corresponding 37-series, except that a 21 plate, 164 ampere hour battery is used on the 38-90 V-16. The positive battery terminal is grounded on all series. The battery is mounted under the hood on the right hand side on all series except 38-90, on which it is located under the right front seat.

Removal of the battery for V-8 cars is accomplished in the following manner:

After disconnecting the leads, remove the through bolt at the outer edge of the battery carrier. This is accessible from under the right front fender.

Raise the battery enough to unhook clamps which extend into frame side bar, and pull battery and carrier straight out from frame until hooks clear, and then lower to floor.

The shunt wound, air-cooled generators previously used are continued without change on the corresponding 38-series cars. The 38-50, 60 and 65 generator is voltage regulated, whereas the 38-75 and 90 generator has both current and voltage regulation. An entirely new type of generator drive, described on page 13, is used on 38-90.

The starting motor used on 38-series V-8's, is the same as that used on the 37-series. A new 6-pole starting motor is used on 38-90. It is mounted on the right side of the engine just ahead of the flywheel, and it drives the pinion directly instead of through reduction gears as formerly used. The solenoid-operated mechanical shift for the starter pinion is used unchanged on all 38-series.

The vibrator trumpet type horns used on 37-series V-8's are used on all 38-series cars, but are mounted in a new location. The horns are installed vertically, trumpet down, just behind the radiator grille, which must be removed to service the horns. The horn operating relay is located on the L. F. fender dust shield. The horns are mounted on laminated springs to avoid the transmission of vibrations to the car body.

Changes in the wiring harness on all 38-series cars will simplify service operations. The harness passes through a large grommet in the dash, so arranged that the entire end of the harness may be pushed through the opening from either side. Wires and connectors for radio and heater are included in the harness at assembly to facilitate installation of these accessories. In other respects the chassis wiring is substantially the same.

Although headlamps of new design and appearance are used on all 38-series cars, the headlighting system is itself unchanged. The system comprises the familiar "city," "passing," and "driving" beams, with hand and foot switches and an indicator to show which beam (except the "parking" position) is in use. Both headlamps contain a 32-32 candle power bulb; otherwise bulb recommendations are unchanged.

As prefocued bulbs are used, aiming is the only adjustment required by the headlamps. The very secure mounting of the headlamps minimizes the need for re-aiming, although a recheck of the beam patterns is recommended every time new headlamp bulbs are installed. The beam patterns are exactly the same as for the 37-series headlamps, although the headlamp centers are lower as indicated in the diagram in Fig. 19.

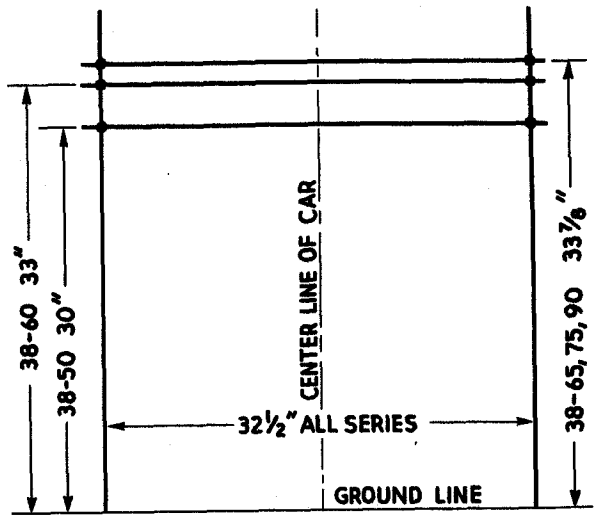


Fig. 19. Location of headlamp aiming centers

Beam patterns should be checked only when the headlamp doors are in place. Up-and-down correction is made by means of a spring-loaded adjusting screw accessible through a hole in the bottom of each lamp. Sideways correction is made by an adjusting screw located on the inner side of each lamp body and accessible after removal of the spring-retained cap. (See Fig. 20.)

The instrument panels of all the 38-series cars are of the same general design and construction, differing from each other only in color and decoration. The structural portion is integral with the body and the visible portion is assembled to it.

The group of instruments at the left includes the usual dials surrounding a large speedometer, the entire cluster being mounted in a die casting. The instruments are of the same construction as formerly.

The center panel includes the clock, a large ash receiver, and a built-in radio grille, as well as the

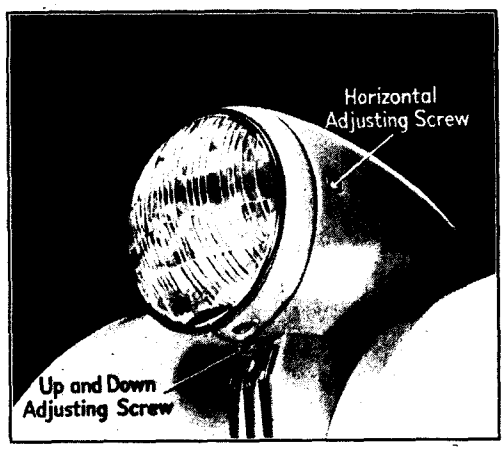


Fig. 20 Headlamp adjusting screws (all 38-series)

ignition switch and knobs for throttle, cigar lighter and radio, which for safety are mounted in a recessed panel. The clock is an accessory on LaSalle, and standard on all Cadillacs. Although radio is still an accessory, the grille and control knobs are fitted to all cars. The glove compartment constitutes the right hand section of the board.

The starter switch is mounted at the extreme left, with the push-pull light switch just above it. The positions of the light switch, used in conjunction with the foot control, are the same as heretofore. The two-position instrument lamp switch is mounted on the flange of the board just below the center panel. There is no rheostat connected to the instrument lamps. The lock lamp, which illuminates the ignition switch, takes the place of the map lamp formerly used.

The instrument lamp switch, when moved to the left-hand position, lights the instrument lamps, provided the headlamps are also turned on. When the switch is moved to the right, the instrument lamps and lock lamp are lighted, regardless of the headlamps. Ordinarily the switch will be moved to the left-hand position, in which the instrument lamps will be lighted whenever the driving lights are turned on.

Accessory installation has been simplified by providing for the mounting of control brackets and switches along the instrument board bottom flange.

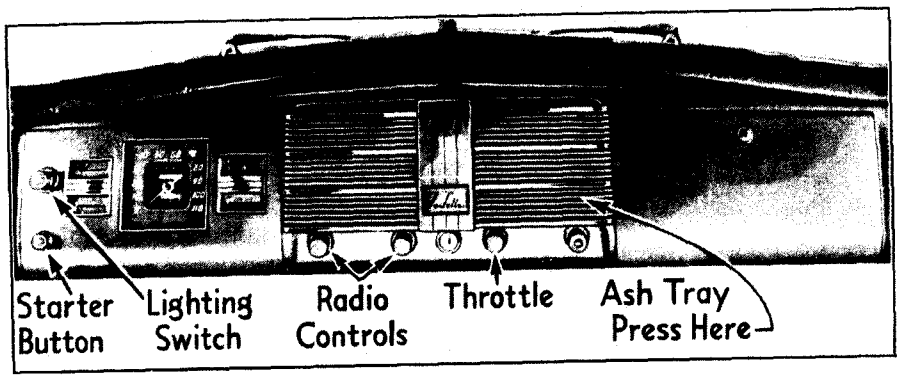


Fig. 21. Instrument panel, LaSalle, typical of 38-series Cadillacs

Radiator

	38-50	38-60	38-65 & 75	38-90
Radiator:				
Area of core in sq. in.	414	404	414	505
Thickness of core	3"	3"	3½"	3½"
Capacity of cooling system	25 qts.	24 qts.	25 qts.	30 qts.
Hose Connections:				
Cylinder head to radiator (2 used):				
Diameter, inside	1¼"	1¼"	1¼"	1½"
Length	10¾"	10⅛"	10¾"	10¼"
Radiator to water pump (2 used on 38-90):				
Diameter, inside	2"	2"	2"	1¾"
Length	7¼"	6¾"	7¼"	4¾"

The radiator, shutters, and thermostat on the 38-series cars are very similar to those used on the 37-series. The most important new features are a new method of adjusting the shutters on all series and a novel thermostat mounting on the 38-90 only.

Cooling efficiency has been improved on LaSalle and Cadillac V-8's by increasing the area of the grille opening. The frontal area of the core itself is unchanged on 38-50, 65 and 75. The core on the 38-60 is lower and wider than heretofore, and is more efficiently uncovered by the grille, although the area is slightly less. The thickness of the core is 3 inches on 38-50 and 60 and 3½ inches on all other Cadillacs.

The 38-90 radiator differs in several respects from the 37-90. The top tank has been made larger, increasing reserve water capacity. The thickness of the core has been decreased to 3½ inches, which provides an increase in cooling efficiency, and the width has been increased to provide slightly greater area. The new grille has a larger opening area and better air distribution characteristics. The cooling system capacity has been increased.

The 38-90 radiator shutter thermostat has been moved to the rear of the top tank, where it is more accessible and is protected from cold air blasts which might cause irregular operation. The

shutter linkage extends through a tube in the upper tank, as shown in Fig. 22.

The pressure-operated vent and overflow, with the familiar double catch bayonet type filler cap, is continued on all 38-series cars. The pressure required to vent the system is, however, several pounds higher (6¼ to 7½ lbs.) on the 38-90 than on the other series cars, (3½ to 4½ lbs.). Because of this, the 38-90 filler cap, which is chrome plated for easy identification, is not interchangeable with the V-8 caps and is designed so that it cannot be installed on the V-8 radiators.

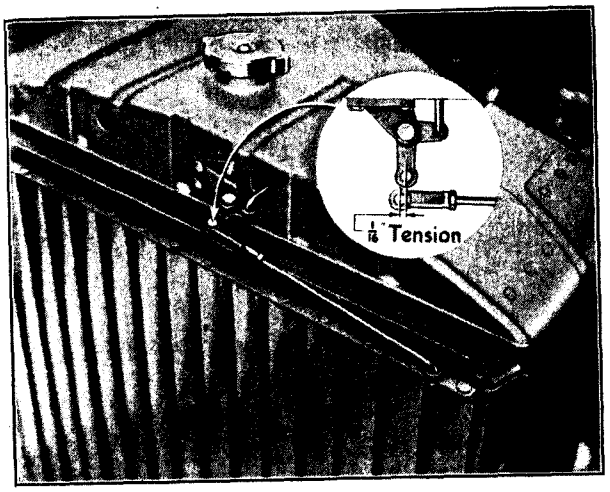


Fig. 22. Radiator thermostat connections, series 38-90, and rod adjustment, all series.

The radiator core can be removed from all 38-series cars without removing the radiator casing. On V-8 cars it is necessary only to remove the air cleaner and the sheet metal shroud above the core; and remove the cap screws holding the core in place. On V-16 cars, the ignition coils, the fuel pumps and the fan must also be removed, and the distributor heads taken off before the core can be lifted out.

The only other change in service operations on the radiator is in the adjustment of the shutter control rod. This rod is now threaded on the inner end, and should be adjusted so that there is 1/16-inch bind at the shutter end. This adjustment, which is similar to that required by 36-series and previous Cadillac shutter controls, is illustrated in Fig. 22.

Lubrication

	38-50, 60	38-65, 75	38-90
Engine Lubrication:			
Crankcase capacity	7 qts.	7 qts.	11 qts.
Engine oil, Summer grade	SAE 20, 30	SAE 20, 30	SAE 20, 30
Winter grade	20-W, 10-W	20-W, 10-W	20-W, 10-W
Transmission capacity	2½ pts.	2½ pts.	2½ pts.
Lubricant	SAE 90, SAE 90 EP	SAE 90, SAE 90 EP	SAE 90, SAE 90 EP
Rear axle capacity	5 pts.	6 pts.	6 pts.
Lubricant	SAE 90 Hypoid	SAE 90 Hypoid	SAE 90 Hypoid

Two changes have been made in the engine oil recommendations for the 38-series, aside from the V-16 oil capacity as given above.

The first of these is an extra oil change at 1,000 miles. The oil originally in the engine should be changed when the car has been driven 1,000 miles and changed again at the 2,000 mile mark, and every 2,000 miles thereafter. This additional oil change will assure exceptionally clean oil for the new engine.

The other new recommendation is for the use of SAE 20 and 30 grades in summer rather than SAE 30 and 40 grades. This is in line with a general trend toward the use of lighter engine oils, and in experimental use it has proved most satisfactory.

These recommendations are included in the new engine lubrication write-up in the owner's manual. Every service man should be familiar with this write-up, which is as follows:

"The proper selection of a crankcase oil will add much to the performance, reliability, economy and long life of your engine.

"During the first 1000 miles use the oil that was in the crankcase when the car was delivered. When it is necessary to add oil during this period, use nothing heavier than 10-W oil in winter or 20-W in summer. Change the oil at the end of 1000 miles.

NOTE: "Break-in" oils or compounds are entirely unnecessary. They should not be used under any circumstances unless the supplier can furnish satisfactory proof that the compound contains no harmful ingredients.

"After the first 1000 miles the crankcase oil should be selected to give the best performance under your individual climatic and driving conditions.

"During cold weather an oil should be used that will permit easy starting at the lowest atmospheric temperature that is likely to be encountered.

"The same considerations that guide the car owner in determining the strength of the anti-freeze solution for protection throughout the winter must guide him in selecting engine oil for winter use. At the approach of freezing weather the owner must estimate the lowest atmospheric temperature that he expects to encounter throughout the winter period. He must then select an anti-freeze solution sufficiently concentrated to prevent freezing at this lowest anticipated temperature.

"When the engine crankcase is being refilled, the engine oil should be selected, not on the basis of atmospheric temperature existing at the time of the change, but on the anticipated minimum temperature for the entire period during which the oil is to be used. Unless the selection is made on this basis, difficulty in starting will be experienced at each sudden drop in temperature.

"The viscosity grades of engine oil for use in your LaSalle car at the various cold weather temperatures are given in the following chart:

If you anticipate that the minimum atmospheric temperature will be:	Use the grade indicated:
Not lower than 32°F. above zero	20-W or SAE-20
As low as 10°F. above zero	20-W
As low as 10°F. below zero	10-W
Below 10°F. below zero	10-W plus 10% kerosene

NOTE: 10-W oil plus 10% kerosene is recommended only for those territories where temperature falls below 10° F. below zero for long periods.

"During summer weather the use of 20-W or SAE 20 engine oil will permit better all-around performance of the engine than will the heavy body oils. SAE 30 oil may be used if it is expected that the average prevailing daylight temperature will be 90° F. or above, or if the car is regularly driven at high speeds.

SAE Viscosity Numbers

"The viscosity of a lubricant is simply a measure of its body or fluidity. The SAE viscosity numbers mentioned in this section constitute a classification of lubricants in terms of fluidity, but without reference to any other properties. The oils with the lower numbers are lighter and flow more readily than do the oils with the higher numbers.

"The refiners or marketers supplying the oil are responsible for the quality of the product. Their reputation is the car owner's best assurance of quality.

"The SAE viscosity numbers have been adopted by practically all oil companies and no difficulty should be experienced in obtaining the correct grades of lubricant.

Maintaining Oil Level

"Check the oil level every time gasoline is purchased and add oil if necessary. The oil gauge rod is marked in quarts; add oil whenever the level falls below the *6 quart mark, but do not add above the 7 quart mark. Always be sure to have the right amount before starting on a long drive.

Changing Crankcase Oil

"Oils have been improved greatly, driving conditions have changed, and improvements in engines have lengthened considerably the life of good lubricating oils. It is, however, necessary to change the crankcase oil whenever it becomes contaminated with harmful foreign materials, to assure continuation of best performance, low maintenance cost and long engine life.

"Under normal driving conditions, draining the crankcase and replacing with fresh oil every 2000 to 3000 miles is recommended. Under adverse driving conditions, it may become necessary to drain the crankcase oil more frequently.

"Short runs in cold weather do not permit thorough warming up of the engine, and water may accumulate in the crankcase from condensation of moisture produced by burning fuel. Water in the crankcase may freeze and interfere with proper oil circulation. It also promotes rusting and may cause clogging of oil screens and passages. Under normal driving conditions this water is removed by the crankcase ventilator, but if water accumulates on short runs it should be removed by draining crankcase as frequently as may be required.

"During winter months, light or low viscosity oils are required to obtain easy starting. The crankcase should, therefore, be drained at the beginning of winter and refilled with oil of the proper viscosity for winter use. After continuous hard driving, these light oils may thicken and cause hard starting. Thus, although a drainage period of 2000 miles may be desirable for cars subjected to high speed driving, under very severe conditions more frequent draining may be required to prevent hard starting due to thickened oil.

"It is advisable to drain the crankcase only after the engine has reached normal operating temperature. The benefit of draining is, to a large extent, lost if crankcase is drained when engine is cold, as some suspended foreign matter will cling to the sides of the oil pan and will not drain out readily with slower moving cold oil.

"Whenever the crankcase oil is changed, the copper gauze in the engine oil filler cap, which is

*For V-8 engines; "Full" mark on V-16 engines.

also the air intake for the crankcase ventilating system, should be cleaned in gasoline and dipped in engine oil."

Transmission lubricant recommendations remain unchanged. Gear oil of SAE 90 grade, either with or without mild EP characteristics, should be used all year around. The lubricant level should be checked every 3,000 miles, and the lubricant drained and replaced every 6,000 miles regardless of season.

The hypoid rear axles used on all 38-series cars must be lubricated with SAE 90 hypoid lubricant. The level of lubricant in the rear axle should be inspected every 1,000 miles and SAE 90 hypoid lubricant added if necessary to bring the level up to the filler plug. The lubricant should be drained out, the housing flushed thoroughly with kerosene or flushing oil, and fresh SAE 90 hypoid lubricant installed every 6,000 miles regardless of season.

Lubrication operations for the 38-series chassis and bodies are the same as for the corresponding 37-series, with a few self-evident exceptions. The various lubricating points on the chassis are illustrated and explained in the lubrication charts for each model, which are a part of the owner's manual. Extra copies of the charts for service station use are available from the Parts Division.

Tool List

	Tool No.	*Series*
Engine		
Valve Lifter Foot	J-257X16	38-90
Valve Lock Inserter	J-1166	38-90
Piston Pin Replacing Tool	J-1167	38-90
Rear Main Bearing Oil Seal Compressor	J-1177	All
Transmission		
Clutch Connection Needle Bearing Lock Ring Replacing Tool	J-1170	All
Shifter Shaft Ball Inserter	J-1168	All
Shifter Shaft Oil Seal Inserter	J-1169	All
Lower Shifter Lever Pusher	J-1176	All
Fuel System		
Gas Gauge Dash Unit Tester	HMO-204	All*
Steering		
Steering Wheel Puller	J-1174	All

*Includes past models also.

ACCESSORY GROUPS

La Salle

B

Clock
Flexible Wheel
Group Price.....$27.50

AD

Clock
Discs (4)
Flexible Wheel
License Frames
Group Price.....$49.00

AR5 (5 wheel)

Clock
Trim Rings (5)
Flexible Wheel
License Frames
Group Price.....$40.50

AR6 (6 wheel)

Clock
Trim Rings (6)
Flexible Wheel
License Frames
Group Price.....$42.00

Cadillac—Series 60-65-75

A

Discs (4)
Flexible Wheel
License Frames
Group Price.....$36.50

Cadillac Accessories

Master Radio (installed complete) Series 50-60-65	$79.50
Standard Radio (installed complete) Series 50-60-65	65.00
Fleetwood Radio (installed complete) Series 75 and 90	95.00
Wheel Discs (each)	4.00
Wheel Trim Rings (each)	1.50
Flexible Steering Wheel	15.00
License Frames (pair)	5.50
Adverse Weather Lights	17.50
Spotlight	18.50
Hinge Mirror	4.50
Automatic Battery Filler	7.50
Moto-Pack	6.85
Hot Water Heater—Defroster	26.50
Hot Water Heater (rear compartment) Series 65-75-90	42.50
Fleetwood Robe (made of identical cloth)	50.00
Double Alpaca Robe	30.00
Alpaca and Plush Robe	30.00
Seat Covers (each seat)	7.50
Luggage—Brown and White Striped Ducoid Finish—	
Wardrolette	42.50
Ladies' Aviatrix	35.00
Gentleman's Aviator	35.00

CADILLAC
LA SALLE

1938

ADVERTISED DELIVERED

PRICES

AT DETROIT

All Prices Subject to Change
Without Notice

September 28, 1937

CADILLAC MOTOR CAR
DIVISION
GENERAL MOTORS SALES CORPORATION
DETROIT • MICHIGAN • U. S. A.

1938

La Salle V-8 (38-50)

124" Wheelbase

Style No.		
5027	2 Pass. Coupe	$1295.00
5011	5 Pass. Tour. Coupe	1340.00
5019	5 Pass. Sedan	1380.00
5067	Convertible Coupe	1415.00
5049	Convertible Sedan	1820.00

6 Wheels, Fenderwells, Tire Covers $95.00
Except Convertible Sedan 60.00

7.00-16 Royal or Firestone 4-ply black tires are standard equipment.

Additional charge for white side wall tires, $3.60 per tire.
Extra charge for right hand fenderwell on all body styles except Convertible Sedan $40.00

CADILLAC Sixty (38-60)

Fleetwood Body—127" Wheelbase

6019	5 Pass. Sedan	$2985.00

6 Wheels, Fenderwells, Tire Covers $100.00

7.00-16 Royal or Firestone 4-ply black tires are standard equipment.

Additional charge for white side wall tires, $3.60 per tire.
Extra charge for right hand fenderwell $42.00

Cadillac V-8 (38-65)

132" Wheelbase

6519	5 Pass. Sedan	$2285.00
6519F	5 Pass. Imperial	2360.00
6549	Convertible Sedan	2600.00

6 Wheels, Fenderwells, Tire Covers $110.00
Except Convertible Sedan 67.50

7.50-16 Royal or Firestone 4-ply black tires are standard equipment.

Additional charge for white side wall tires, $4.55 per tire.
Extra charge for right hand fenderwell $47.00

1938

CADILLAC Fleetwood (38-75)

141" Wheelbase

Style No.		
7519	5 Pass. Sedan	$3075.00
7519F	5 Pass. Imperial	3155.00
7523	7 Pass. Sedan	3205.00
7533	7 Pass. Imperial	3360.00
7557	2 Pass. Coupe	3275.00
7557B	5 Pass. Coupe	3380.00
7539	5 Pass. Town Sedan	3635.00
7589	5 Pass. Formal Sedan	3990.00
7533F	7 Pass. Formal Sedan	3990.00
7567	Convertible Coupe	3380.00
7529	Convertible Sedan	3940.00
7553	Town Car	5115.00
7523L	8 Pass. Business Sedan	3105.00
7533L	8 Pass. Business Imperial	3255.00

6 Wheels, Fenderwells, Tire Covers $120.00

7.50-16 Royal or Firestone 6-ply black tires are standard equipment.

Additional charge for white side wall tires, $5.50 per tire.
Extra charge for right hand fenderwell $50.00

CADILLAC Sixteen (38-90)

Fleetwood Body—141" Wheelbase

9019	5 Pass. Sedan	$5135.00
9019F	5 Pass. Imperial	5215.00
9023	7 Pass. Sedan	5265.00
9033	7 Pass. Imperial	5420.00
9057	2 Pass. Coupe	5335.00
9057B	5 Pass. Coupe	5440.00
9039	5 Pass. Town Sedan	5695.00
9059	5 Pass. Formal Sedan	6050.00
9033F	7 Pass. Formal Sedan	6050.00
9067	Convertible Coupe	5440.00
9029	Convertible Sedan	6000.00
9053	Town Car	7170.00

6 Wheels, Fenderwells, Tire Covers $130.00

7.50-16 Royal or Firestone 6-ply black tires are standard equipment.

Additional charge for white side wall tires, $5.50 per tire.

Colors for 1938 Model Cadillac and La Salle Cars

246-52881 Italian Cream (Comb. No. 14)

31¾ oz. 246-0091 White
7/16 oz. 246-062 Yellow
5/16 oz. 246-064 Ferrite Yellow
Trace 246-020 Black

32½ oz.

202-52901 Cloudmist Green Metallic (Comb. No. 10)

14¼ oz. 246-0091 White
6¾ oz. 246-077 Extra Dark Green
4 oz. 246-020 Black
¾ oz. 246-064 Ferrite Yellow
6¼ oz. 202-082 Metallic Base No. 2

32 oz.

246-52902-M Patillo Maroon (Comb. No. 3)

24 1/16 oz. 246-0372-M Dark Maroon
3 1/16 oz. 246-020 Black
2 13/16 oz. 246-033-M Medium Maroon
1 7/16 oz. 246-0091 White

32 oz.

202-52903 Deauville Beige Metallic (Comb. No. 9)

20¼ oz. 246-0091 White
3⅞ oz. 246-064 Ferrite Yellow
3¼ oz. 246-040 Brown (Burnt Umber)
⅝ oz. 246-020 Black
4½ oz. 202-082 Metallic Base No. 2

32¼ oz.

202-52904 Edgewood Green Metallic (Comb. No. 13)

10 1/16 oz. 246-020 Black
7¾ oz. 246-070 Light Green
7 7/16 oz. 246-0091 White
2⅛ oz. 246-064 Ferrite Yellow
4½ oz. 202-082 Metallic Base No. 2

32⅜ oz.

202-52905 Fairhaven Blue Metallic (Comb. No. 11)

9 9/16 oz. 246-052 Prussian Blue
9⅜ oz. 246-0091 White
6 7/16 oz. 246-051 Milori Blue
3 1/16 oz. 246-020 Black
3⅛ oz. 202-082 Metallic Base No. 2

32 5/16 oz.

246-52906 Antoinette Blue (Comb. No. 2)

22¾ oz. 246-051 Milori Blue
3 1 1/16 oz. 246-020 Black
3 oz. 246-050 Dark Blue (Chinese)
2¼ oz. 246-0091 White

31 1/16 oz.

246-52909 Chantel Blue (Comb. No. 8)

22 oz. 246-0091 White
6 oz. 246-052 Prussian Blue
4⅜ oz. 246-020 Black

32⅜ oz.

246-52921 Pelham Gray (Comb. No. 6)

20 3/16 oz. 246-0091 White
6½ oz. 246-020 Black
2⅞ oz. 246-031 Dark Red (Oxide)
2 7/16 oz. 246-064 Ferrite Yellow

32 oz.

246-52922 St. Regis Green (Comb. No. 4)

19⅞ oz. 246-020 Black
6 15/16 oz. 246-050 Dark Blue (Chinese)
3 1/16 oz. 246-0091 White
2⅛ oz. 246-070 Light Green

32 oz.

246-52923 Moleskin Gray (Comb. No. 5)

18 oz. 246-0091 White
14¾ oz. 246-020 Black
1¾ oz. 246-064 Ferrite Yellow
⅝ oz. 246-031 Dark Red (Oxide)

34⅞ oz.

202-52929 Manchu Beige Metallic (Comb. No. 7)

17⅞ oz. 246-0091 White
4¼ oz. 246-063 Orange
3⅜ oz. 246-031 Dark Red (Oxide)
3 oz. 246-040 Brown (Burnt Umber)
3 oz. 202-082 Metallic Base No. 2

31½ oz.

202-52931 Crusier Gray Metallic (Comb. No. 12)

No mixing formula available for this color—order ready-mixed only.

ADDED MAY 1938

246-5473 Carolina Green (Comb. No. 15)

27¼ oz. 246-0091 White
2¾ oz. 246-073 Dark Green
1⅝ oz. 246-070 Light Green
¼ oz. 246-020 Black

32 oz.

246-32494 Sea Gull Gray (Comb. No. 16)

31 oz. 246-0091 White
9/16 oz. 246-020 Black
¼ oz. 246-031 Dark Red (Oxide)
¼ oz. 246-064 Ferrite Yellow

32 1/16 oz.

202-32495-M Oxblood Maroon Metallic (Comb. No. 17)

25⅝ oz. 246-033 Medium Maroon
2½ oz. 246-0091 White
1 11/16 oz. 246-0372 Dark Maroon
1½ oz. 246-020 Black
1 oz. 202-082 Metallic Base No. 2

32 1/16 oz.

246-53175 Barcelona Blue (Comb. No. 18)

28⅞ oz. 246-0091 White
1½ oz. 246-020 Black
1⅜ oz. 246-073 Dark Green
5/16 oz. 246-064 Ferrite Yellow

32 1/16 oz.

NOTE: Formulas are shown in parts by volume which measured in fluid oz. approximates 1 qt. or 32 oz.

COLOR COMBINATIONS (Continued)

Series 37-50

x Comb. Code No.	BODY AND SHEET METAL Color Name	Color No.	Mfgr.	WHEELS Color Name	Matching Color No.
20	Black	2422101	Dupont	Black Dulux Flare Red Clearwater Green	943549 24250567
21	Admiral Blue	24250534	Dupont	Admiral Blue	24250534
22	Ricardo Maroon	24252338	Dupont	Flare Red	943549
23	Douglas Green	24250618	Dupont	Clearwater Green	24250567
24	Peruvian Gray	24252337	Dupont	Flare Red	943549
25	Briarcliff Blue	24250878	Dupont	Lullwater Blue	24250951
26	Springdale Green Metallic	20252276	Dupont	Springdale Green Metallic	20252276
27	Golden Beige Metallic	20251628	Dupont	Ormond Brown	24250589
28	Rockledge Gray	24251015	Dupont	Clearwater Green	24250567
29	Santaupe Metallic	20251485	Dupont	Kashan Blue	24250686

Series 37-60, 65, 70, 75, 85

50	Black	20488	R & M	Black Flare Red Clearwater Green	943549 24250567
51	Antoinette Blue	22290	R & M	Antoinette Blue	22290
52	Richelier Maroon	26630	R & M	Flare Red	943549
53	Charlevoix Green	20355	R & M	Thistle Green	24650702
54	LaMothe Gray Iridescent	P.S.103	R & M	Flare Red	943549
55	Andre Blue	20230	R & M	Andre Blue	20230
56	Bouquet Green	20398	R & M	Bouquet Green	943892
57	Frontenac Brown Iridescent	P.S.841	R & M	Frontenac Brown	1823496
58	Cavalier Blue Iridescent	P.S.2336	R & M	Cavalier Blue Iridescent	1823890
59	Menard Gray Iridescent	P.S.134	R & M	Flare Red	943549
60	Beauregard Beige	0-20830	R & M	Cinnebar Red	24650798

Series 38-50, 60, 60S, 65, 75, 90

1	Black	20498	R & M	Black Clearwater Green Flare Red	94-005 94-5245 94-3549R
2	Antoinette Blue	22290	R & M	Antoinette Blue	9420506
3	Patillo Maroon	26655	R & M	Patillo Maroon	9420501
4	St. Regis Green	020364	R & M	Atlantis Green	9420505
5	Moleskin Gray	20181	R & M	Flare Red Dulux	943549R
6	Pelham Gray	020155	R & M	Desert Sand	9420499
7	Manchu Beige Iridescent	P.S.816	R & M	Laquedoc Orange	9420504
8	Chantel Blue	020219	R & M	Chantel Blue	9420511
9	Deauville Beige Iridescent	P.S.815	R & M	Deauville Beige Iridescent	9420502
10	Cloudmist Green Iridescent	P.S.308	R & M	Cloudmist Green Iridescent	9420500
11	Fairhaven Blue Iridescent	P.S.202	R & M	Fairhaven Blue Iridescent	9420507
12	Cruiser Gray Iridescent	P.S.108	R & M	Nimbus Gray Iridescent	942663
13	Edgewood Green Iridescent	P.S.340	R & M	Edgewood Green Iridescent	9420503
14	Italian Cream	20734	R & M	Italian Cream	9420498
15	Carolina Green	20361	R & M	Carolina Green	20361
16	Sea Gull Gray	21271	R & M	Carolina Green	20361
17	Oxblood Iridescent Maroon	P.S.608	R & M	Oxblood Iridescent Maroon	P.S.608
18	Barcelona Blue	022224	R & M	Cascino Beige	242-51737

Steering Wheel, Steering Column, Hand Brake Lever and Instrument Panel	Series 38-50, 60, 60S, 65	Light Beige	20251942
	Series 38-75, 90	Worth Brown	2429835

x Code Comb. No. will be found on Body Plate on dash.

The Instructions, Illustrations, Alphabetical List and general information in the Master Body Parts List are to be used when ordering '38 Series parts.

CHART OF BODY STYLES FOR '38 SERIES

The list of body styles have been arranged two ways; first, by style number in numerical sequence showing the corresponding series number; second, by series showing the style number, style name, and wheelbase.

NUMERICAL LIST OF BODY STYLES

Style No.	Series	Style No.	Series	Style No.	Series	Style No.	Series
38-5011	38-50	38-6519	38-65	38-7533L	38-75	38-9029	38-90
38-5019	38-50	38-6519F	38-65	38-7539	38-75	38-9033	38-90
38-5027	38-50	38-6549	38-65	38-7553	38-75	38-9033F	38-90
38-5049	38-50	38-7519	38-75	38-7557	38-75	38-9039	38-90
38-5067	38-50	38-7519F	38-75	38-7557B	38-75	38-9053	38-90
38-6019S	38-60S	38-7523	38-75	38-7559	38-75	38-9057	38-90
38-6119	38-60	38-7523L	38-75	38-7567	38-75	38-9057B	38-90
38-6127	38-60	38-7529	38-75	38-9019	38-90	38-9059	38-90
38-6149	38-60	38-7533	38-75	38-9019F	38-90	38-9067	38-90
38-6167	38-60	38-7533F	38-75	38-9023	38-90		

LIST OF BODY STYLES ARRANGED BY SERIES

STYLE NO.	BODY TYPE	WHEEL BASE
	SERIES 38-50	
38-5011	5 Pass Touring Coupe	124"
38-5019	5 Pass. Sedan	124"
38-5027	2 Pass. Coupe	124"
38-5049	5 Pass. Conv. Sedan	124"
38-5067	2 Pass. Conv. Coupe	124"
	SERIES 38-60	
38-6119	5 Pass. Sedan	124"
38-6127	2 Pass. Coupe	124"
38-6149	5 Pass. Conv. Sedan	124"
38-6167	2 Pass. Conv. Coupe	124"
	SERIES 38-60S	
38-6019S	5 Pass. Special Sedan	127"
	SERIES 38-65	
38-6519	5 Pass. Sedan	132"
38-6519F	5 Pass. Imperial Sedan	132"
38-6549	5 Pass. Conv. Sedan	132"
	SERIES 38-75	
38-7519	5 Pass. Sedan Fleetwood	141"
38-7519F	5 Pass. Imperial Sedan Fleetwood	141"
38-7523	7 Pass. Sedan Fleetwood	141"
38-7523L	7 Pass. Business Sedan Fleetwood	14
38-7529	5 Pass. Conv. Sedan Fleetwood	14
38-7533	7 Pass. Imperial Sedan Fleetwood	14
38-7533F	7 Pass. Formal Sedan Fleetwood	14
38-7533L	7 Pass. Business Imperial Sedan Fleetwood	14
38-7539	5 Pass. Town Sedan Fleetwood	14
38-7553	7 Pass. Town Car Fleetwood	14
38-7557	2 Pass. Coupe Fleetwood	14
38-7557B	5 Pass. Coupe Fleetwood	14
38-7559	5 Pass. Formal Sedan Fleetwood	14
38-7567	2 Pass. Conv. Coupe Fleetwood	14
	SERIES 38-90	
38-9019	5 Pass. Sedan Fleetwood	14
38-9019F	5 Pass. Imperial Sedan Fleetwood	14
38-9023	7 Pass. Sedan Fleetwood	14
38-9029	5 Pass. Conv. Sedan Fleetwood	14
38-9033	7 Pass. Imperial Sedan Fleetwood	14
38-9033F	7 Pass. Formal Sedan Fleetwood	14
38-9039	5 Pass. Town Sedan Fleetwood	14
38-9053	7 Pass. Town Car Fleetwood	14
38-9057	2 Pass. Coupe Fleetwood	14
38-9057B	5 Pass. Coupe Fleetwood	14
38-9059	5 Pass. Formal Sedan Fleetwood	14
38-9067	2 Pass. Conv. Coupe Fleetwood	14

ENGINE NUMBERS

Series	Engine No.	Series	Engine No.	Series	Engine No.
38-50	2,270,001 to	38-60S	6,270,001 to	38-75	3,270,001 to
38-60	8,270,001 to	38-65	7,270,001 to	38-90	5,270,001 to

COLOR CHART: For complete color information, consult the Master Chassis Parts List.

COMMERCIAL BODY PARTS: Parts for ambulance bodies, hearses, and special custom bodies not built by Fisher Fleetwood, should be ordered from the body manufacturers.

COLOR COMBINATION FOR 1938 SERIES CARS
38-50, 60, 65, 75, 90

a group of colors, consisting of fourteen options are available on all lines instead of two groups as in the past. All lacquers are Rinshed-Mason except instrument panel and wheel colors.

STANDARDIZED COLORS—ALL CARS

Radiator Grille- Chrome and Argent Aluminum.
Trunk and Deck Interiors - Tan Enamel to match 28898 Riviera Biege.
Instrument Panel - Series 38-50,60,65, 202-51942, Light Biege, on top and sides, including compartment door; center section with chrome strips finished in 4157 Tenite.

Series 38-75,90, 24209835, Worth Brown, on top and lower strip of center section. Transfer (Dinoc R1405C399) applied to both ends, including compartment door;center section with chrome strips finished in 6415 Tenite.

COLOR COMBINATIONS

No.1
Body, fenders, and Tire Cover
20498 Black
Wheels - Black - optional
20539 Flare Red Dulux or
242-50567 Clearwater Green Dulux
Stripe - Pale Gold Bronze

No.2
Body, Fenders, and Tire Cover
22290 Antoinette Blue
Wheels -22290 Antoinette Blue Dulux
Stripe - Pale Gold Bronze

No.3
Body, Fenders, and Tire Cover
26655 Patillo Maroon
Wheels -26655 Patillo Maroon Dulux
Stripe - Pale Gold Bronze

No.4
Body, Fenders, and Tire Cover
020364 St. Regis Green
Wheels - 2441218 Atlantis Green Dulux
Stripe - Pale Gold Bronze

No.5
Body,Fenders, and Tire Cover
20181 Moleskin Gray
Wheels - 20539 Flare Red Dulux
Stripe - Pale Gold Bronze

No.6
Body, Fenders, and Tire Cover
020155 Pelham Gray
Wheels -246-6312 Desert San Dulux
Stripe - Pale Gold Bronze

No.7
Body, Fenders, and Tire Cover
P.S. 816 Manchu Biege Iridescent
Wheels -246-3222 Laquedoc Orange Dulux
Stripe - Pale Gold Bronze

No.8
Body, Fenders, and Tire Cover
020219 Chantel Blue
Wheels - 020219 Chantel Blue Dulux
Stripe - Pale Gold Bronze

No.9
Body, Fenders, and Tire Cover
P.S. 815 Deauville Biege Iridescent
Wheels -P .S. 815 Deauville Biege Iridescent Dulux
Stripe - 246-51151 Pimpernel Scarlet

No.10
Body, Fenders, and Tire Cover
P.S. 308 Cloudmist Green Iridescent
Wheels - P.S. 308 Cloudmist Green Iridescent Dulux
Stripe - Pale Gold Bronze

No.11
Body, Fenders, and Tire Cover
P.S. 202 Fairhaven Blue Iridescent
Wheels - P.S. 202 Fairhaven Blue Iridescent Dulux
Stripe - Pale Gold Bronze

No.12
Body, Fenders,and Tire Cover
P.S. 108 Cruiser Gray Iridescent
Wheels - 246-51058 Nimbus Gray Iridescent Dulux
Stripe - Pale Gold Bronze

No.13
Body, Fenders, and Tire Cover
P.S. 340 Edgewood Green Iridescent
Wheels - P.S. 340 Edgewood Green Iridescent Dulux
Stripe - Pale Gold Bronze

No.14
Body, Fenders,and Tire Cover
20734 Italian Cream
Wheels - 20734 Italian Cream Dulux
Stripe -20498 Black Dulux

INSTRUCTIONS FOR ORDERING UPHOLSTERY

Always use trim (upholstery) chart when ordering yardage upholstery.

USE OF UPHOLSTERY CHARTS. Having obtained the trim number from the body plate or Unit Assembly Record, reference should be made to the Upholstery Charts for information on upholstery for the various parts of the body. The upholstery used for the sidewalls and for the headlining is quite often different than that used on the cushions and back rests. Example: Refer to trim code number 30. The upholstery is described as Tan Pattern Cloth, trim No. 60T138, Part No. 4083725. The Tan Pattern material is used on the seat cushions, seat back rests, door arm rests, and rear side arm rests. The upholstery on the tonneau side of the front seat back, doors, and other sidewall trim assemblies is a tan plain cloth, trim No. 62T138, Part No. 4083727. The material for the headlining is different than either the cushion upholstery or sidewall upholstery, it being a tan cloth of lighter weight, trim No. 30T138, Part No. 4082150. Convertible coupes and sedans use the same upholstery on the sidewalls as is used on seat cushions and back rests.

For complete information on ordering trim material, see instructions in Group B4 of the Master Body Parts List.

UPHOLSTERY CHART NO.5

Series 38-50,60,60S,65,75,90

Code No.	Description	Description of upholstery used for cushions and back rests only - except where bodies are trimmed the same throughout. Trim No.	Part No.	Upholstery used on cushions and back rests - except where bodies are trimmed the same throughout. Trim No.	Part No.	SIDEWALL MATERIAL Designates material used on sides of body for doors, center pillar, quarters, and for back of front seat back on tonneau side. Trim No.	Part No.	HEADLINING MATERIAL Trim No.	Part No.
30	Tan Pattern Cloth (Series 38-50)	60T138	4083725	62T138	4083727	30T138	4082150		
31	Tan Ribbed Cloth (Series 38-50)	61T138	4083726	62T138	4083727	30T138	4082150		
32	Gray Pattern Cloth (Series 38-50)	64T138	4083728	66T138	4083730	27T138	4082095		
33	Gray Ribbed Cloth (Series 38-50)	65T138	4083729	66T138	4083730	27T138	4082095		
35	Tan Plush (Export - Series 38-50,65)	41T138	4074135	41T138	4074135	42T138	4082243		
36	Black Leather (Series 38-50)	1T1338	4074202						
37	Tan Leather (Series 38-50)	2T1338	4074234						
38	Gray Leather (Series 38-50)	3T1338	4074236						
39	Green Leather (Series 38-50)	4T1338	4074238						
40	Tan Bedford Cord Cloth (Series 38-60,60S,65,75)	70T138	4075025	73T138	4075028	44T138	4082206		
41	Tan Novelty Bedford Cloth (Series 38-60,60S,65,75)	71T138	4075026	73T138	4075028	44T138	4082206		
42	Tan Plain Cloth (Series 38-60,60S,65,75)	72T138	4075027	73T138	4075028	44T138	4082206		
43	Gray Bedford Cord Cloth (Series 38-60,60S,65,75)	75T138	4075029	78T138	4075032	43T138	4082207		
44	Gray Novelty Bedford Cloth (Series 38-60,60S,65,75)	76T138	4075030	78T138	4075032	43T138	4082207		
45	Gray Plain Cloth (Series 38-60,60S,65,75)	77T138	4075031	78T138	4075032	43T138	4082207		
46	Black Leather (Series 38-60,60S,65)	1T1338	4074202						
47	Tan Leather (Series 38-60, 60S,65)	2T1338	4074234						
48	Gray Leather (Series 38-60,60S,65)	3T1338	4074236						
49	Green Leather (Series 38-60,60S,65)	4T1338	4074238						

UPHOLSTERY CHART NO.5 (Cont'd)

Series 38-50,60,60S,65,75,90

Code No.	Description	Description of upholstery used for cushions and back rests only - except where bodies are trimmed the same throughout. Trim No.	Part No.	Upholstery used on cushions and back rests - except where bodies are trimmed the same throughout. Trim No.	Part No.	SIDEWALL MATERIAL Designates material used on sides of body for doors, center pillar, quarters, and for back of front seat back on tonneau side. Trim No.	Part No.	HEADLINING MATERIAL Trim No.	Part No.
50	Blue Leather (Series 38-50,60,60S,65)	5T1338	4074240						
51	Red Leather (Series 38-50, 60,60S,65)	6T1338	4074242						
W4901	Brown Pattern Cloth (Series 38-75,90)	1T138	4075035	or W4901	4075035	3T138	4075037	4T138	4083742
W4902	Brown Bedford Cord Cloth (Series 38-75,90)	2T138	4075036	or W4902	4075036	3T138	4075037	4T138	4083742
W4903	Brown Plain Cloth (Series 38-75,90)	3T138	4075037	or W4903	4075037	3T138	4075037	4T138	4083742
W4934	Tan Crenelure Cloth (Series 38-90)	5T138	4083743	or W4934	4083743	6T138	4075038	7T138	4083745
W4909	Tan Plain Cloth (Series 38-75,90)	6T138	4075038	or W4909	4075038	6T138	4075038	7T138	4083745
W4931	Beige Cloth (Series 38-90)	8T138	4083746	or W4931	4083746	8T138	4083746	9T138	4083747
W4905	Gray Pattern Cloth (Series 38-75,90)	10T138	4075039	or W4905	4075039	13T138	4075041	14T138	4083752
W4935	Gray Crenelure Cloth (Series 38-90)	11T138	4083749	or W4935	4083749	13T138	4075041	14T138	4083752
W4906	Gray Bedford Cord Cloth (Series 38-75,90)	12T138	4075040	or W4906	4075040	13T138	4075041	14T138	4083752
W4907	Gray Plain Cloth (Series 38-75,90)	13T138	4075041	or W4907	4075041	13T138	4075041	14T138	4083752
EO.814	Black Leather (Series 38-75)	7T1338	4068671	or EO.814	4068671				
EO.815	Tan Leather (Series 38-75)	8T1338	4068672	or EO.815	4068672				
EO.817	Gray Leather (Series 38-75)	9T1338	4068673	or EO.817	4068673				
EO.816	Green Leather (Series 38-75)	10T1338	4068674	or EO.816	4068674				
BL.772	Black Leather (Series 38-90)	22T1338	4083764	or BL.772	4083764				
BL.771	Tan Leather (Series 38-90)	23T1338	4083765	or BL.771	4083765				
BL.770	Gray Leather (Series 38 38-90)	24T1338	4083766	or BL.770	4083766				
BL.769	Green Leather (Series 38-90)	25T1338	4083767	or BL.769	4083767				
BL.768	Blue Leather (Series 38-90)	26T1338	4083768	or BL.768	4083768				
	Gray Plush (Export - Series 38-50,65)	54T138	4076703			54T138	4076703	43T138	4082207
	Gray Plush (Export - Series 38-75,90)	54T138	4076703			54T138	4076703	14T138	4083752
	Blue Gray Figured Cloth (Series 38-75,90)	11T136	4068685	or W4724	4068685	11T136	4068685	12T136	4068686
	Gray Bedford Cloth (Series 38-75,90)	6T136	4068680	or W4721	4068680				

ROOF COVERING MATERIAL SPECIFICATIONS

The following chart may be used as a guide when ordering top material for convertible sedans, and convertible coupes.

Where possible, the amount of material required for these tops is shown for the convenience of Distributors and Dealers.

On many convertible bodies special material has been used, therefore, this chart cannot be used when ordering for such cars, as the material listed applies to standard material used in regular production.

STYLE NO.	MATERIAL PART NO.	MATERIAL	REQUIREMENTS
38-5049. .	4074244 - Tan.	Fabric top covering (Standard). . .	6 1/2 yards required for entire outside top covering.
	4074248 - Blue	Fabric top covering (Special) . . .	
	4074250 - Black. . . .	Fabric top covering (Special) . . .	
	4074245 - Tan used with all colors. . . .	Fabric top lining (Standard). . . .	6 1/2 yards required for entire inside top lining.
38-5067. .	4074244 - Tan.	Fabric top covering (Standard). . .	4 1/2 yards required for entire outside top covering.
	4074248 - Blue	Fabric top covering (Special) . . .	
	4074250 - Black. . . .	Fabric top covering (Special) . . .	
	4074245 - Tan used with all colors. . . .	Fabric top lining (Standard). . . .	4 yards required for entire inside top lining.
38-6149. .	4074244 - Tan.	Fabric top covering (Standard). . .	6 1/2 yards required for entire outside top covering.
	4074248 - Blue	Fabric top covering (Special) . . .	
	4074250 - Black. . . .	Fabric top covering (Special) . . .	
	4074245 - Tan used with all colors. . . .	Fabric top lining (Standard). . . .	6 1/2 yards required for entire inside top lining.
38-6167. .	4074244 - Tan.	Fabric top covering (Standard). . .	4 1/2 yards required for entire outside top covering.
	4074248 - Blue	Fabric top covering (Special) . . .	
	4074250 - Black. . . .	Fabric top covering (Special) . . .	
	4074245 - Tan used with all colors. . . .	Fabric top lining (Standard). . . .	4 yards required for entire inside top lining.
38-6549. .	4074244 - Tan.	Fabric top covering (Standard). . .	7 yards required for entire outside top covering.
	4074248 - Blue	Fabric top covering (Special) . . .	
	4074250 - Black. . . .	Fabric top covering (Special) . . .	
	4074245 - Tan used with all colors. . . .	Fabric top lining (Standard). . . .	7 yards required for entire inside top lining.
38-7529. .	4075053 - Tan.	Fabric top covering	8 yards required for entire outside top covering.
	4075054 - Tan.	Fabric top lining	8 yards required for entire inside top lining.
38-7533F .	. . . . .	Genuine Landau Leather.	Requirements and prices on request.
38-7553. .	. . . . .	Genuine Landau Leather.	Requirements and prices on request.
38-7559. .	. . . . .	Genuine Landau Leather.	Requirements and prices on request.
38-7567. .	4075053 - Tan.	Fabric top covering	7 yards required for entire outside top covering.
	4075054 - Tan.	Fabric top lining	7 yards required for entire inside top lining.
38-9029. .	4075053 - Tan.	Fabric top covering	8 yards required for entire outside top covering.
	4075054 - Tan.	Fabric top lining	8 yards required for entire inside top lining.
38-9033F .	. . . . .	Genuine Landau Leather.	Requirements and prices on request.
38-9053. .	. . . . .	Genuine Landau Leather.	Requirements and prices on request.

ROOF COVER MATERIAL SPECIFICATIONS (Cont'd)

STYLE NO.	MATERIAL PART NO.	MATERIAL	REQUIREMENTS
38-9059. .	. . . . .	Genuine Landau Leather.	Requirements and prices on request.
38-9067. .	4075053 - Tan.	Fabric top covering	7 yards required for entire outside top covering.
	4075054 - Tan.	Fabric top lining	7 yards required for entire inside top lining.

PART NO.	SERIES OR STYLE

TOP ILLUSTRATION REFERENCE

The '38 Convertible Coupe tops and Convertible Sedan tops are sufficiently similar in design to the '37 series so that the '37 series illustrations may be used for determining requirements and group numbers.

The following chart indicates which illustrations should be used for each '38 convertible body style.

Style No.	Refer To	Use Illustration
38-5049 .	Page 114	Covering Convertible Sedan Style 37-5049,37-6049
38-5067 .	Page 114	Covering Convertible Coupe Style 37-5067,37-6067
38-6149 .	Page 114	Covering Convertible Sedan Style 37-5049,37-6049
38-6167 .	Page 114	Covering Convertible Coupe Style 37-5067,37-6067
38-6549 .	Page 115	Covering Convertible Sedan Style 37-7029
38-7529 .	Page 116	Covering Fleetwood Convertible Sedan Style 5780,36-5780,36-7529, 37-5780,37-7529
38-7567 .	Page 116	Covering Fleetwood Five Passenger Convertible Coupe Style 5785, 36-5785,37-5785
38-9029 .	Page 116	Covering Fleetwood Convertible Sedan Style 5780,36-5780,36-7529, 37-5780,37-7529
38-9067 .	Page 116	Covering Fleetwood Five Passenger Convertible Coupe Style 5785, 36-5785,37-5785

B6.0001 TOP ASSEMBLY. Includes Top covering with Quarters, Back Curtain, with glass. All Folding Framework above Doors. (Windshield and dust boot not included).

Style and body numbers must be specified on all orders.

NOTE: The top assembly cannot be supplied completely assembled, as it is necessary to fit in place on the body before top covering can be fitted on. The framework will be partially assembled and the top covering will be made up as far as practical, but final fitting and finishing must be done when installing.

Prices on Part Numbers followed with symbol(*) are for tan tops only - Prices on blue and black on application.

PART NO.	SERIES OR STYLE

B6.0001 TOP ASSEMBLY. Includes Top covering with Quarters, Back Curtain, with glass. All Folding Framework above Doors. (Windshield and dust boot not included). (Cont'd.)

For Convertible Sedans

F-1477	*.....	38-5049
F-1478	*.....	38-6149
F-1479	*.....	38-6549
F-1480	.....	38-7529
F-1481	.....	38-9029

For Convertible Coupes

F-1482	*.....	38-5067
F-1483	*.....	38-6167
F-1484	.....	38-7567
F-1485	.....	38-9067

B6.0002 TOP COVERING MADE UP, Including Quarters, Back Curtain with Glass, but less Top Framework Construction and less Top Boot. The top Covering will be made up so far as practical, but final fitting and finishing must be done when installing.

Style and body numbers must be specified on all orders

Prices on Part Numbers followed with symbol * are for tan tops only - Prices on blue and black on application.

For Convertible Sedans

F-1486	*.....	38-5049
F-1487	*.....	38-6149
F-1488	*.....	38-6549
F-1489	.....	38-7529
F-1490	.....	38-9029

For Convertible Coupes

F-1491	*.....	38-5067
F-1492	*.....	38-6167
F-1493	.....	38-7567
F-1494	.....	38-9067

INSTRUCTIONS FOR ORDERING UPHOLSTERY

Always use trim (upholstery) chart when ordering yardage upholstery.

USE OF UPHOLSTERY CHARTS. Having obtained the trim number from the body plate or Unit Assembly Record, reference should be made to the Upholstery Charts for information on upholstery for the various parts of the body. The upholstery used for the sidewalls and for the headlining is quite often different than that used on the cushions and back rests. Example: Refer to trim code number 30. The upholstery is described as Tan Pattern Cloth, trim No. 60T138, Part No. 4083725. The Tan Pattern material is used on the seat cushions, seat back rests, door arm rests, and rear side arm rests. The upholstery on the tonneau side of the front seat back, doors, and other sidewall trim assemblies is a tan plain cloth, trim No. 62T138, Part No. 4083727. The material for the headlining is different than either the cushion upholstery or sidewall upholstery, it being a tan cloth of lighter weight, trim No. 30T138, Part No. 4082150. Convertible coupes and sedans use the same upholstery on the sidewalls as is used on seat cushions and back rests.

For complete information on ordering trim material, see instructions in Group B4 of the Master Body Parts List.

UPHOLSTERY CHART NO.5

Series 38-50,60,60S,65,75,90

Code No.	Description of upholstery used for cushions and back rests only - except where bodies are trimmed the same throughout.	Upholstery used on cushions and back rests - except where bodies are trimmed the same throughout.		SIDEWALL MATERIAL Designates material used on sides of body for doors, center pillar, quarters, and for back of front seat back on tonneau side.		HEADLINING MATERIAL	
		Trim No.	Part No.	Trim No.	Part No.	Trim No.	Part No.
30	Tan Pattern Cloth (Series 38-50)	60T138	4083725	62T138	4083727	30T138	4082150
31	Tan Ribbed Cloth (Series 38-50)	61T138	4083726	62T138	4083727	30T138	4082150
32	Gray Pattern Cloth (Series 38-50)	64T138	4083728	66T138	4083730	27T138	4082099
33	Gray Ribbed Cloth (Series 38-50)	65T138	4083729	66T138	4083730	27T138	4082099
35	Tan Plush (Export - Series 38-50,65)	41T138	4074135	41T138	4074135	42T138	4082243
36	Black Leather (Series 38-50)	1T1338	4074202				
37	Tan Leather (Series 38-50)	2T1338	4074234				
38	Gray Leather (Series 38-50)	3T1338	4074236				
39	Green Leather (Series 38-50)	4T1338	4074238				
40	Tan Bedford Cord Cloth (Series 38-60,60S,65,75)	70T138	4075025	73T138	4075028	44T138	4082208
41	Tan Novelty Bedford Cloth (Series 38-60,60S,65,75)	71T138	4075026	73T138	4075028	44T138	4082208
42	Tan Plain Cloth (Series 38-60,60S,65,75)	72T138	4075027	73T138	4075028	44T138	4082208
43	Gray Bedford Cord Cloth (Series 38-60,60S,65,75)	75T138	4075029	78T138	4075032	43T138	4082207
44	Gray Novelty Bedford Cloth (Series 38-60,60S,65,75)	76T138	4075030	78T138	4075032	43T138	4082207
45	Gray Plain Cloth (Series 38-60,60S,65,75)	77T138	4075031	78T138	4075032	43T138	4082207
46	Black Leather (Series 38-60,60S,65)	1T1338	4074202				
47	Tan Leather (Series 38-60, 60S,65)	2T1338	4074234				
48	Gray Leather (Series 38-60,60S,65)	3T1338	4074236				
49	Green Leather (Series 38-60,60S,65)	4T1338	4074238				

UPHOLSTERY CHART NO.5 (Cont'd)

Series 38-50,60,60S,65,75,90

Code No.	Description	Description of upholstery used for cushions and back rests only - except where bodies are trimmed the same throughout. Trim No.	Part No.	Upholstery used on cushions and back rests - except where bodies are trimmed the same throughout. Trim No.	Part No.	SIDEWALL MATERIAL Designates material used on sides of body for doors, center pillar, quarters, and for back of front seat back on tonneau side. Trim No.	Part No.	HEADLINING MATERIAL Trim No.	Part No.
50	Blue Leather (Series 38-50,60,60S,65).	5T1338	4074240						
51	Red Leather (Series 38-50, 60,60S,65).	6T1338	4074242						
W4901	Brown Pattern Cloth (Series 38-75,90)	1T138	or W4901 4075035			3T138	4075037	4T138	4083742
W4902	Brown Bedford Cord Cloth (Series 38-75,90)	2T138	or W4902 4075036			3T138	4075037	4T138	4083742
W4903	Brown Plain Cloth (Series 38-75,90)	3T138	or W4903 4075037			3T138	4075037	4T138	4083742
W4934	Tan Crenelure Cloth (Series 38-90).	5T138	or W4934 4083743			6T138	4075038	7T138	4083745
W4909	Tan Plain Cloth (Series 38-75,90)	6T138	or W4909 4075038			6T138	4075038	7T138	4083745
W4931	Beige Cloth (Series 38-90)	8T138	or W4931 4083746			8T138	4083746	9T138	4083747
W4905	Gray Pattern Cloth (Series 38-75,90)	10T138	or W4905 4075039			13T138	4075041	14T138	4083752
W4935	Gray Crenelure Cloth (Series 38-90).	11T138	or W4935 4083749			13T138	4075041	14T138	4083752
W4906	Gray Bedford Cord Cloth (Series 38-75,90)	12T138	or W4906 4075040			13T138	4075041	14T138	4083752
W4907	Gray Plain Cloth (Series 38-75,90)	13T138	or W4907 4075041			13T138	4075041	14T138	4083752
E0.814	Black Leather (Series 38-75).	7T1338	or E0.814 4068671						
E0.815	Tan Leather (Series 38-75)	8T1338	or E0.815 4068672						
E0.817	Gray Leather (Series 38-75).	9T1338	or E0.817 4068673						
E0.816	Green Leather (Series 38-75).	10T1338	or E0.816 4068674						
BL.772	Black Leather (Series 38-90).	22T1338	or BL.772 4083764						
BL.771	Tan Leather (Series 38-90)	23T1338	or BL.771 4083765						
BL.770	Gray Leather (Series 38 38-90).	24T1338	or BL.770 4083766						
BL.769	Green Leather (Series 38-90).	25T1338	or BL.769 4083767						
BL.768	Blue Leather (Series 38-90).	26T1338	or BL.768 4083768						
	Gray Plush (Export - Series 38-50,65).	54T138	4076703			54T138	4076703	43T138	4082207
	Gray Plush (Export - Series 38-75,90).	54T138	4076703			54T138	4076703	14T138	4083752
	Blue Gray Figured Cloth (Series 38-75,90)	11T136	or W4724 4068685			11T136	4068685	12T136	4068686
	Gray Bedford Cloth (Series 38-75,90)	6T136	or W4721 4068680						

ROOF COVERING MATERIAL SPECIFICATIONS

The following chart may be used as a guide when ordering top material for convertible sedans, and convertible coupes.

Where possible, the amount of material required for these tops is shown for the convenience of Distributors and Dealers.

On many convertible bodies special material has been used, therefore, this chart cannot be used when ordering for such cars, as the material listed applies to standard material used in regular production.

STYLE NO.	MATERIAL PART NO.	MATERIAL	REQUIREMENTS
38-5049	4074244 - Tan	Fabric top covering (Standard)	6 1/2 yards required for entire outside top covering.
	4074248 - Blue	Fabric top covering (Special)	
	4074250 - Black	Fabric top covering (Special)	
	4074245 - Tan used with all colors	Fabric top lining (Standard)	6 1/2 yards required for entire inside top lining.
38-5067	4074244 - Tan	Fabric top covering (Standard)	4 1/2 yards required for entire outside top covering.
	4074248 - Blue	Fabric top covering (Special)	
	4074250 - Black	Fabric top covering (Special)	
	4074245 - Tan used with all colors	Fabric top lining (Standard)	4 yards required for entire inside top lining.
38-6149	4074244 - Tan	Fabric top covering (Standard)	6 1/2 yards required for entire outside top covering.
	4074248 - Blue	Fabric top covering (Special)	
	4074250 - Black	Fabric top covering (Special)	
	4074245 - Tan used with all colors	Fabric top lining (Standard)	6 1/2 yards required for entire inside top lining.
38-6167	4074244 - Tan	Fabric top covering (Standard)	4 1/2 yards required for entire outside top covering.
	4074248 - Blue	Fabric top covering (Special)	
	4074250 - Black	Fabric top covering (Special)	
	4074245 - Tan used with all colors	Fabric top lining (Standard)	4 yards required for entire inside top lining.
38-6549	4074244 - Tan	Fabric top covering (Standard)	7 yards required for entire outside top covering.
	4074248 - Blue	Fabric top covering (Special)	
	4074250 - Black	Fabric top covering (Special)	
	4074245 - Tan used with all colors	Fabric top lining (Standard)	7 yards required for entire inside top lining.
38-7529	4075053 - Tan	Fabric top covering	8 yards required for entire outside top covering.
	4075054 - Tan	Fabric top lining	8 yards required for entire inside top lining.
38-7533F		Genuine Landau Leather	Requirements and prices on request.
38-7553		Genuine Landau Leather	Requirements and prices on request.
38-7559		Genuine Landau Leather	Requirements and prices on request.
38-7567	4075053 - Tan	Fabric top covering	7 yards required for entire outside top covering.
	4075054 - Tan	Fabric top lining	7 yards required for entire inside top lining.
38-9029	4075053 - Tan	Fabric top covering	8 yards required for entire outside top covering.
	4075054 - Tan	Fabric top lining	8 yards required for entire inside top lining.
38-9033F		Genuine Landau Leather	Requirements and prices on request.
38-9053		Genuine Landau Leather	Requirements and prices on request.

ROOF COVER MATERIAL SPECIFICATIONS (Cont'd)

STYLE NO.	MATERIAL PART NO.	MATERIAL	REQUIREMENTS
38-9059. .	. . . . .	Genuine Landau Leather.	Requirements and prices on request.
	4075053 - Tan.	Fabric top covering	7 yards required for entire outside top covering.
38-9067. .	4075054 - Tan.	Fabric top lining	7 yards required for entire inside top lining.

PART NO.	SERIES OR STYLE

TOP ILLUSTRATION REFERENCE

The '38 Convertible Coupe tops and Convertible Sedan tops are sufficiently similar in design to the '37 series so that the '37 series illustrations may be used for determining requirements and group numbers.

The following chart indicates which illustrations should be used for each '38 convertible body style.

Style No.	Refer To	Use Illustration
38-5049 .	Page 114	Covering Convertible Sedan Style 37-5049,37-6049
38-5067 .	Page 114	Covering Convertible Coupe Style 37-5067,37-6067
38-6149 .	Page 114	Covering Convertible Sedan Style 37-5049,37-6049
38-6167 .	Page 114	Covering Convertible Coupe Style 37-5067,37-6067
38-6549 .	Page 115	Covering Convertible Sedan Style 37-7029
38-7529 .	Page 116	Covering Fleetwood Convertible Sedan Style 5780,36-5780,36-7529, 37-5780,37-7529
38-7567 .	Page 116	Covering Fleetwood Five Passenger Convertible Coupe Style 5785, 36-5785,37-5785
38-9029 .	Page 116	Covering Fleetwood Convertible Sedan Style 5780,36-5780,36-7529, 37-5780,37-7529
38-9067 .	Page 116	Covering Fleetwood Five Passenger Convertible Coupe Style 5785, 36-5785,37-5785

B6.0001 TOP ASSEMBLY. Includes Top covering with Quarters, Back Curtain, with glass. All Folding Framework above Doors. (Windshield and dust boot not included).

Style and body numbers must be specified on all orders.

NOTE: The top assembly cannot be supplied completely assembled, as it is necessary to fit in place on the body before top covering can be fitted on. The framework will be partially assembled and the top covering will be made up as far as practical, but final fitting and finishing must be done when installing.

Prices on Part Numbers followed with symbol(*) are for tan tops only - Prices on blue and black on application.

PART NO.	SERIES OR STYLE

B6.0001 TOP ASSEMBLY. Includes Top covering with Quarters, Back Curtain, with glass. All Folding Framework above Doors. (Windshield and dust boot not included). (Cont'd.)

For Convertible Sedans

F-1477	*.....	38-5049
F-1478	*.....	38-6149
F-1479	*.....	38-6549
F-1480	.....	38-7529
F-1481	.....	38-9029

For Convertible Coupes

F-1482	*.....	38-5067
F-1483	*.....	38-6167
F-1484	.....	38-7567
F-1485	.....	38-9067

B6.0002 TOP COVERING MADE UP, Including Quarters, Back Curtain with Glass, but less Top Framework Construction and less Top Boot. The top Covering will be made up so far as practical, but final fitting and finishing must be done when installing.

Style and body numbers must be specified on all orders

Prices on Part Numbers followed with symbol * are for tan tops only - Prices on blue and black on application.

For Convertible Sedans

F-1486	*.....	38-5049
F-1487	*.....	38-6149
F-1488	*.....	38-6549
F-1489	.....	38-7529
F-1490	.....	38-9029

For Convertible Coupes

F-1491	*.....	38-5067
F-1492	*.....	38-6167
F-1493	.....	38-7567
F-1494	.....	38-9067